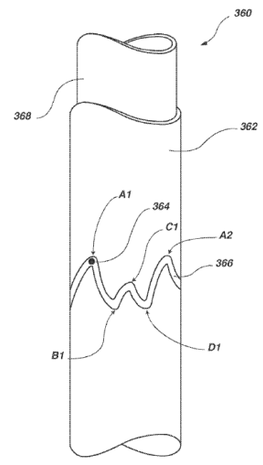
SPECIAL MASTER'S CLAIM CONSTRUCTION CHART

Joint Claim Construction and Evidentiary Support Chart[1]

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
'635 Patent - claim 1 1. An expandable reamer for drilling a subterranean formation, comprising: a tubular body; at least one blade carried by the tubular body; and an ***actuation member*** selectively and repeatably positionable between a first position within the tubular body and a second position within the tubular body, and configured to maintain the expandable reamer in a first operating condition during a flow of drilling fluid through the tubular body when ***the actuation member*** is positioned in the first position and to maintain the expandable reamer in a second operating condition during a substantially identical flow of	"[***an***] ***actuation member***"	a movable mechanism including, for example, a movable sleeve, linkage, pistons, or other mechanical configurations	"Of course, many other ***mechanical arrangements*** for actuating the blades of the expandable reamer are contemplated by the present invention. For instance, ***the expandable reamer of the present invention may be actuated by mechanical means such as threaded elements, pistons, linkages, tapered elements or cams, or other mechanical configurations may be used.***" '635 Patent, col. 8:20–26 Claims 2 and 3 2. The expandable reamer of claim 1, further comprising a biasing element positioned and configured to bias the ***actuation member*** to a third position within the tubular body.	"a moveable sleeve with an affixed pin"	**Intrinsic Evidence** **'635 patent**: Claims 1, 2, 6, 11–15, 19 Claim 1 – "an **actuation member** selectively and repeatably positionable between a first position within the tubular body and a second position within the tubular body, and configured to **maintain the expandable reamer in a first operating condition during a flow of drilling fluid** through the tubular body when **the actuation member** is positioned in the first position and to **maintain the expandable reamer in a second operating condition during a substantially identical flow of drilling fluid** through the tubular	A movable mechanism including, a movable sleeve, linkage or pistons.

[1] The asserted patents are U.S. Patent Nos. 8,215,418 ("the '418 Patent"); 8,020,635 ("the '635 Patent"); and 8,881,833 ("the '833 Patent")

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
drilling fluid through the tubular body when ***the actuation member*** is positioned in the second position. Other claims: '418 Patent - claims 3, 6, 7, 10, 11, 15, 18 '635 Patent - claims 2, 6, 11–15, 19			3. The expandable reamer of claim 2, ***further comprising a pin guide assembly*** comprised within a circumferentially extending groove, the circumferentially extending groove comprising a pattern of peaks and valleys." '635 patent, col. 32:24–30 Restriction element embodiment: "However, a restriction element 266 may be deployed within the drilling fluid stream and may ultimately be disposed within sleeve seat 252, as shown in FIG. 2B. Initially, as restriction element 266 becomes disposed within sleeve seat 252, the actuation sleeve 240 longitudinal position may be as shown in FIG. 2A. However, drilling fluid pressure may cause the actuation sleeve 240 to be displaced longitudinally to a		body when **the actuation member** is positioned in the second position." FIG. 3  FIG. 3 4:53-67 – "Moreover, a flow restriction element may be disposed within the drill string to actuate the expansion of the expandable reamer. For instance, a ball may be disposed within the drilling fluid, traveling therein, ultimately seating within the actuation sleeve	

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			position shown in FIG. 2B. Upon contact between actuation seal 243 and the actuation sleeve 240 ceasing, drilling fluid may pass into the annulus 217 formed between inner surfaces 221 and 223 of movable blades 212 and 214, respectively, and the actuation sleeve 240. Although blade-biasing elements 224, 226, 228, and 230 may be configured to provide an inward radial or lateral force upon movable blades 212 and 214, drilling fluid pressure acting upon the inner surfaces 221 and 223 may generate a force that exceeds the inward radial or lateral force and movable blades 212 and 214 may be disposed radially or laterally outward, thus matingly engaging retention elements 216 and 220, respectively. Retention elements 216 and 220 may be affixed to tubular body		disposed at the first position. Pressure from the drilling fluid may subsequently build to force the ball and actuation sleeve, **optionally held in place by way of a shear pin or other frangible member, into a second position**, thereby actuating the expansion of the expandable reamer. Such a configuration may require that once the movable blades are expanded by the ball, in order to contract the movable blades, the flow is diverted around the seated ball to allow a maximum fluid flow rate through the tool. Thus, the expandable reamer may be configured as a "one shot" tool, which may be reset after actuation." 5:1-7 – "Further, **a pressure-actuated pin guide** may be employed to cause the reamer to assume different operational conditions. More specifically, a pin guide may comprise **a**	

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			232 by way of removable lock rods (not shown) disposed therethrough and within regions 233 and 235 as described hereinabove in relation to FIGS. lA, lB, and lDl. Thus, the movable blades 212 and 214 of expandable reamer 210 may be caused to expand to an outermost position and the borehole may be enlarged by the combination of rotation and longitudinal displacement of the expandable reamer 210." '635 patent, col. 19:64–20:23 "Alternatively, the restriction element 266 and actuation sleeve 240 may be configured to allow for wireline tools or other means to reset the position of the actuation sleeve 240 and thereby ***reset the operating state of the expandable reamer 210 while within the borehole***."		**cylinder with a groove** having alternating upwardly sloping and downwardly sloping arcuate paths formed at least partially along the circumference of the cylinder and **a pin [364] affixed to an actuation sleeve [368]**, the pin disposed within the groove." 5:18-23 – "Further, the longitudinal position of the actuation sleeve may prevent or allow drilling fluid to communicate with the moveable blades. Thus, the reamer may be caused **to assume different operational conditions as the pin may be caused to traverse within the groove of the pin guide**." 20:28-32 – "Thus, the expandable reamer 210 **may be configured as a "one shot" tool**, wherein once the moveable blades 212 and 214 are allowed to expand, the actuation system may not	

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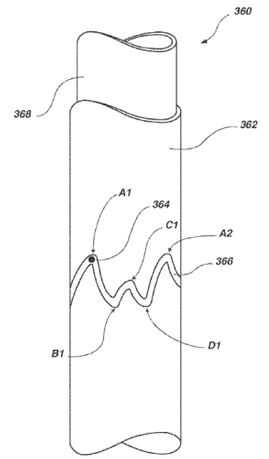
			'635 patent, col. 20: 32–37. <u>Other disclosed embodiments:</u> Sleeve with reduced cross section '635 patent col. 3:3–66, col. 13:3–29, col. 17:34–36, col. 18:42–46, col. 28:9–12; '418 patent col. 2:67–3:61, col. 13:14 – 40, col. 17:46–48, col. 18:53–57, col. 28:20–23 Sleeve with a biasing element '635 patent col. 4:30–37; '418 patent col. 4:34–41 Beyond sleeves–collets, shear pins, valves, burst disks, flow restriction element '635 patent col. 4:48–55, col. 20:53–58; '418 patent, col. 4:52–59, col. 20:53–61		be reset without removing the tool from the borehole." 21:6-27 – "Accordingly, after radial or lateral expansion of movable blades 212 and 214, movable blades 212 and 214 may be caused to contract when the drilling fluid pressure decreases sufficiently so that blade-biasing elements 224, 226, 228, and 230 may exert a radially or laterally inward force to bias movable blades 212 and 214 radially or laterally inward. As noted hereinabove, a taper 219 may facilitate movable blades 212 and 214 returning radially or laterally inwardly via contact between the taper 219 and any other surface or body. **As a further aspect of the present invention, <u>a pin guide sleeve assembly 360</u> as shown in FIG. 3 may be used to position <u>an actuation sleeve 368</u> within an expandable reamer of the**	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
			Ball '635 patent col. 4:55–58; '418 patent col. 4:59–62 Pressure activated pin guide '635 patent col. 5:1–7, col. 21:28–34; '418 patent col. 5:5–12, col. 21:39–43 Mechanical means–threaded elements, pistons, linkages, tapered elements, cams '635 patent col. 8:23–26;'418 patent col. 8:27–31 Electromechanical actuators–turbines, motors, etc. '635 patent col. 8:27–29;'418 patent col. 8:32–34 Downhole pumps or turbines '635 patent col. 9:41–54; '418 patent col. 9:46–60		**present invention.** As illustrated in FIGS. 1A-2B, an actuation sleeve may be used to cause movable blades of an expandable reamer to deploy. More specifically, the position of an actuation sleeve may cause the movable blades of the expandable reamer of the present invention to expand or contract. **Thus, the position of an actuation sleeve 368 may be adjusted by way of a pin guide sleeve assembly 360 and thus may cause movable blades of an expandable reamer to deploy or retract**." 21:28-32 – "FIG. 3 shows a pin guide assembly 360 wherein a groove 366 is formed within sleeve 362. Pin 364 may be disposed within the groove 366 and **pin 364 may be affixed to an actuation sleeve 368 of an expandable reamer** of the present invention."	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					21:36-37 – "Further, groove 366 may be configured to extend about the entire circumference of the sleeve 362 **in a repeating, continuous manner**, so that the pin 364 may be caused to repeatedly traverse within the groove 366 and about the circumference of the sleeve 362." 21:43-52 – "To facilitate movement of the pin 364 within the groove 366, it may be advantageous to configure the **actuation sleeve 368** so that relatively high flow rates of drilling fluid cause the **actuation sleeve 368 and pin 364** to be forced downward. Further, the **actuation sleeve 368** may be configured with a restoring upward force by way of a biasing element as described hereinabove. Therefore, considering the beginning at position A1 as shown in FIG. 3, **the pin 364 may be traversed within the groove**	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					366 to position B1 by way of a relatively high flow rate of drilling fluid, for instance, 800 gallons per minute." 21:66-22:7 – "Further, the interaction between the flow rate and the restoring force may be configured so that drilling fluid flow rates used during typical operation, for instance, 400 gallons per minute flow rate of drilling fluid, may cause the pin 364 to traverse only a portion of the distance between either A1 and B1 or C1 and Di (or generally an upper and lower points within the groove 366.). This may be advantageous **so that the operating condition of the expandable reamer <u>may not change</u> unexpectedly**." **<u>'418 patent</u>**: Claims 3, 6, 7, 10, 11, 15, 18	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					FIG. 3  FIG. 3 4:57-5:4 – "Moreover, a flow restriction element may be disposed within the drill string to actuate the expansion of the expandable reamer. For instance, a ball may be disposed within the drilling fluid, traveling therein, ultimately seating within the actuation sleeve disposed at the first position. Pressure from the drilling fluid may subsequently build to force the ball and	

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					actuation sleeve, **optionally held in place by way of a shear pin or other frangible member, into a second position**, thereby actuating the expansion of the expandable reamer. Such a configuration may require that once the movable blades are expanded by the ball, in order to contract the movable blades, the flow is diverted around the seated ball to allow a maximum fluid flow rate through the tool. Thus, the expandable reamer may be configured as a "one shot" tool, which may be reset after actuation." 5:5-11 – "Further, **a pressure-actuated pin guide** may be employed to cause the reamer to assume different operational conditions. "More specifically, a pin guide may comprise **a cylinder with a groove** having alternating upwardly sloping and downwardly sloping arcuate	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					paths formed at least partially along the circumference of the cylinder and **a pin [364] affixed to an actuation sleeve [368]**, the pin disposed within the groove." 5:23-28 – "Further, the longitudinal position of the actuation sleeve may prevent or allow drilling fluid to communicate with the moveable blades. Thus, the reamer may be caused **to assume <u>different operational conditions</u> as the pin may be caused to traverse within the groove of the pin guide**." 20:39-43 – "Thus, the expandable reamer 210 **may be configured as a "<u>one shot</u>" tool**, wherein once the moveable blades 212 and 214 are allowed to expand, the actuation system may not be reset without removing the tool from the borehole."	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					21:18-38 – "Accordingly, after radial or lateral expansion of movable blades 212 and 214, movable blades 212 and 214 may be caused to contract when the drilling fluid pressure decreases sufficiently so that blade-biasing elements 224, 226, 228, and 230 may exert a radially or laterally inward force to bias movable blades 212 and 214 radially or laterally inward. As noted hereinabove, a taper 219 may facilitate movable blades 212 and 214 returning radially or laterally inwardly via contact between the taper 219 and any other surface or body. **As a further aspect of the present invention, a pin guide sleeve assembly 360 as shown in FIG. 3 may be used to position an actuation sleeve 368 within an expandable reamer of the present invention.** As illustrated in FIGS. 1A-2B, an actuation sleeve may be used	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					to cause movable blades of an expandable reamer to deploy. More specifically, the position of an actuation sleeve may cause the movable blades of the expandable reamer of the present invention to expand or contract. **Thus, the position of an actuation sleeve 368 may be adjusted by way of a pin guide sleeve assembly 360 and thus may cause movable blades of an expandable reamer to deploy or retract**." 21:39-43 – "FIG. 3 shows a pin guide assembly 360 wherein a groove 366 is formed within sleeve 362. Pin 364 may be disposed within the groove 366 and **pin 364 may be affixed to an actuation sleeve 368 of an expandable reamer** of the present invention." 21:47-51 – "Further, groove 366 may be configured to extend about the entire circumference of the sleeve	

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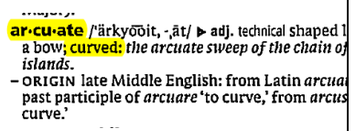
					362 **in a <u>repeating</u>, continuous manner**, so that the pin 364 may be caused to repeatedly traverse within the groove 366 and about the circumference of the sleeve 362." 21:54-64 – "To facilitate movement of the pin 364 within the groove 366, it may be advantageous to configure the **actuation sleeve 368** so that relatively high flow rates of drilling fluid cause the **actuation sleeve 368 and pin 364** to be forced downward. Further, the actuation sleeve 368 may be configured with a restoring upward force by way of a biasing element as described hereinabove. Therefore, considering the beginning at position A1 as shown in FIG. 3, **the pin 364 may be traversed within the groove 366 to position B1 by way of a relatively high flow rate of drilling fluid**, for	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					instance, 800 gallons per minute." 22:11-19 – "Further, the interaction between the flow rate and the restoring force may be configured so that drilling fluid flow rates used during typical operation, for instance, 400 gallons per minute flow rate of drilling fluid, may cause the pin 364 to traverse only a portion of the distance between either A1 and B1 or C1 and Di (or generally an upper and lower points within the groove 366.). This may be advantageous **so that the operating condition of the expandable reamer <u>may not change</u> unexpectedly**." **Extrinsic Evidence** Declaration of Graham Stronach	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
'635 Patent - claim 3 3. The expandable reamer of claim 2, further comprising a pin guide assembly comprised within a circumferentially extending groove, the circumferentially extending groove comprising ***a pattern of peaks and valleys***. Other claims '418 Patent–claim 12	***"a pattern of peaks and valleys"***	a series of alternating upwardly sloping and downwardly sloping curved paths	"For instance, groove 366 may comprise a series of alternating upwardly sloping and downwardly sloping arcuate paths." '635 patent, col. 21:40–42  ar·cu·ate /'ärkyo͞oit, -ˌāt/ ▸ adj. technical shaped l a bow; curved: *the arcuate sweep of the chain of islands.* – ORIGIN late Middle English: from Latin *arcuat* past participle of *arcuare* 'to curve,' from *arcus* curve.' Dkt. 66, Exhibit A at 3, New Oxford American Dictionary 83 (Oxford University Press Third Edition 2010)	"a repeating path of alternating highs and lows immediately following each other where the longitudinal position of the highs and/or lows vary across the pattern"	**Intrinsic Evidence** **'635 patent**: Claim 3 – "The expandable reamer of claim 1, further comprising a pin guide assembly comprised within a circumferentially extending groove, the circumferentially extending groove comprising **a pattern of peaks and valleys**." Claim 1 – "configured to maintain the expandable reamer in a **first operating condition during a flow of drilling fluid** through the tubular body when the actuation member is positioned in the first position and to maintain the expandable reamer in a **second operating condition during a substantially identical flow of drilling fluid** through the tubular body when the actuation member is positioned in the second position."	A series of alternating upwardly sloping and downwardly sloping curved paths.

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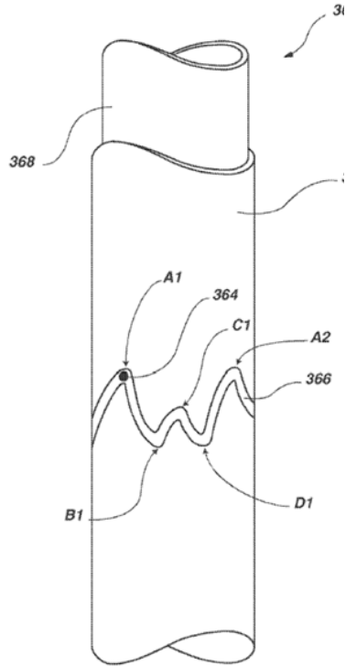
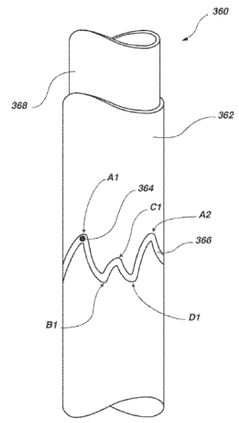
			 FIG. 3 '635 patent, Figure 3		FIG. 3  FIG. 3 21:28-66 – "**FIG. 3 shows a pin guide assembly 360 wherein a groove 366 is formed within sleeve 362**. Pin 364 may be disposed within the groove 366 and pin 364 may be affixed to an actuation sleeve 368 of an expandable reamer of the present invention. Thus, as the pin 364 may be caused to move within the groove 366, actuation sleeve 368 may be caused to move	

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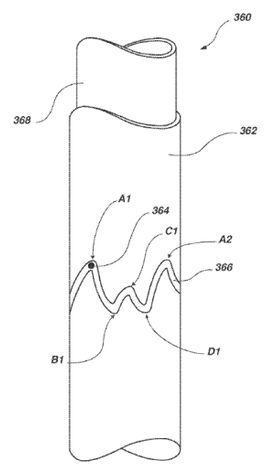
					within an expandable reamer. **Groove 366 may comprise a pattern of peaks and valleys, <u>as represented by the regions A1, B1, C1, D1, and A2</u>**. Further, groove 366 may be configured to extend about the entire circumference of the sleeve 362 in a repeating, continuous manner, so that the pin 364 may be caused to repeatedly traverse within the groove 366 and about the circumference of the sleeve 362. For instance, groove 366 may comprise a series of alternating upwardly sloping and downwardly sloping arcuate paths. To facilitate movement of the pin 364 within the groove 366, it may be advantageous to configure the actuation sleeve 368 so that relatively high flow rates of drilling fluid cause the actuation sleeve 368 and pin 364 to be	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					forced downward. Further, the actuation sleeve 368 may be configured with a restoring upward force by way of a biasing element as described hereinabove. **Therefore, considering the beginning at position A1 as shown in FIG. 3, the pin 364 may be traversed within the groove 366 to position B1 by way of a relatively high flow rate of drilling fluid, for instance, 800 gallons per minute**. Sufficient reduction of the flow rate of drilling fluid may cause the restoring force of a biasing element to cause the pin 364 and actuation sleeve 368 to move upward, into position C1. Similarly, the pin 364 and actuation sleeve 368 may be caused to move to position D1 via a relatively high flow rate of drilling fluid. Further, sufficient reduction of the flow rate of	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					drilling fluid may cause the pin 364 and actuation sleeve 368 to move to position A2. Of course, as mentioned above, **the pattern may continue around the entire circumference of the sleeve 362, and may be continuous so that the sequence may be repeated any number of times. For instance, the groove 366 as shown in FIG. 3 may include peaks and valleys B2, C2, D2, A3, B3, C3, and D3 (not shown) on the portion of the circumference of the sleeve 362 not visible in FIG. 3.**" **'418 patent**: Claim 12 - "The expandable reamer of claim 11, further comprising a pin guide assembly comprised within a circumferentially extending groove, the circumferentially extending	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					groove comprising a pattern of peaks and valleys." FIG. 3  FIG. 3 21:39-22:11 – "FIG. 3 shows a pin guide assembly 360 wherein a groove 366 is	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					formed within sleeve 362. Pin 364 may be disposed within the groove 366 and pin 364 may be affixed to an actuation sleeve 368 of an expandable reamer of the present invention. Thus, as the pin 364 may be caused to move within the groove 366, actuation sleeve 368 may be caused to move within an expandable reamer. **Groove 366 may comprise a pattern of peaks and valleys, as represented by the regions A1, B1, C1, D1, and A2**. Further, groove 366 may be configured to extend about the entire circumference of the sleeve 362 in a repeating, continuous manner, so that the pin 364 may be caused to repeatedly traverse within the groove 366 and about the circumference of the sleeve 362. For instance, groove 366 may comprise a series of alternating upwardly sloping and downwardly sloping	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					arcuate paths. To facilitate movement of the pin 364 within the groove 366, it may be advantageous to configure the actuation sleeve 368 so that relatively high flow rates of drilling fluid cause the actuation sleeve 368 and pin 364 to be forced downward. Further, the actuation sleeve 368 may be configured with a restoring upward force by way of a biasing element as described hereinabove. **Therefore, considering the beginning at position A1 as shown in FIG. 3, the pin 364 may be traversed within the groove 366 to position B1 by way of a relatively high flow rate of drilling fluid, for instance, 800 gallons per minute**. Sufficient reduction of the flow rate of drilling fluid may cause the restoring force of a biasing element to cause the pin 364 and actuation sleeve 368 to move upward, into position C1.	

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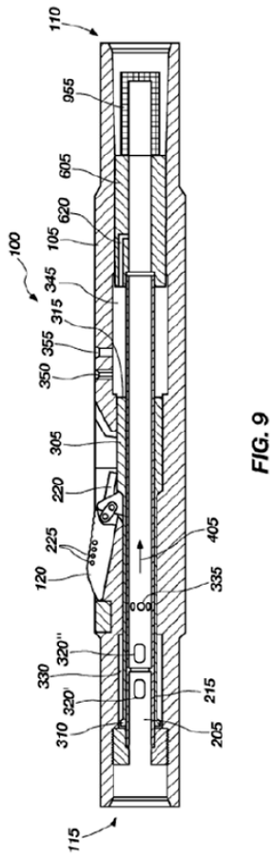
					Similarly, the pin 364 and actuation sleeve 368 may be caused to move to position D1 via a relatively high flow rate of drilling fluid. Further, sufficient reduction of the flow rate of drilling fluid may cause the pin 364 and actuation sleeve 368 to move to position A2. Of course, as mentioned above, **the pattern may continue around the entire circumference of the sleeve 362, and may be continuous so that the sequence may be repeated any number of times. For instance, the groove 366 as shown in FIG. 3 may include peaks and valleys B2, C2, D2, A3, B3, C3, and D3 (not shown) on the portion of the circumference of the sleeve 362 not visible in FIG. 3.**"	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
'833 Patent–claim 14 14. An expandable apparatus, comprising: a tubular body comprising a fluid passageway extending through an inner bore; a push sleeve disposed within the inner bore of the tubular body and coupled to one or more expandable features, the push sleeve comprising a lower surface disposed in a lower annular chamber between the push sleeve and the tubular body and configured to ***move axially responsive*** to a flow of drilling fluid through the fluid passageway to extend and retract the one or more expandable features; and a valve independent of the push sleeve within the tubular body configured to selectively control the flow of drilling fluid from the fluid passageway into the lower annular chamber.	***"move axially responsive"***	move along the axis defined by the tubular body	 FIG. 9 '833 patent, Fig. 9	"configured to move longitudinally upward or downward by drilling fluid . . . to extend and retract"	**Intrinsic Evidence** **'833 Patent**: Claim 14 – "a push sleeve disposed within the inner bore of the tubular body and coupled to one or more expandable features, the push sleeve comprising a lower surface disposed in a lower annular chamber between the push sleeve and the tubular body and configured to **move axially responsive to a flow of drilling fluid through the fluid passageway to extend and retract the one or more expandable features; and** a valve independent of the push sleeve within the tubular body configured to selectively control the flow of drilling fluid from the fluid passageway into the lower annular chamber."	Move along the axis defined by the tubular body.

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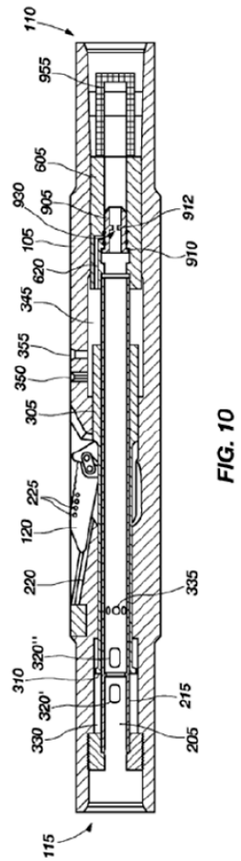
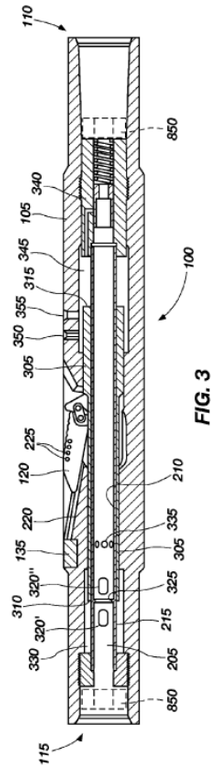
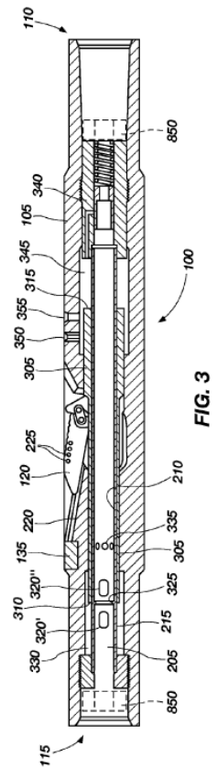
			 FIG. 10 '833 patent, Fig. 10 "FIG. 9 illustrates another embodiment of an expandable apparatus **100**.		FIG. 3  FIG. 3 7:19-23: – "The push sleeve 305 is disposed encircling the stationary sleeve 215 and configured to slide axially within the tubular body 105	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
			In the embodiment disclosed, the one or more valve ports **620** in the valve sleeve **605** are left unobstructed, allowing fluid to flow into the lower annular chamber **345**. The fluid flowing into the lower annular chamber **345** may exert a force on the lower surface **315** of the push sleeve **305**, causing the push sleeve **305** to slide upward and extending the blades **120**, **125**, **130** (as illustrated by blade **120**), as discussed previously. . . . As shown in FIG. 10, when it is desired to retract the blades **120**, **125**, **130**, drilling fluid flow is momentarily ceased, if required, and a trap **905** is dropped into the drill string and pumping of drilling fluid resumed. The trap **905** moves down the drill string and through the expandable reamer apparatus **100** toward the		**in response to pressures applied to one end or the other, <u>or both</u>**." 7:29-31: – "In other embodiments, **the push sleeve 305 may comprise <u>an upper surface 310</u> and a lower surface 315** at opposing longitudinal ends." 7:63-8:3 "The pressure causing the fluid to flow through the fluid passageway 205 and into the upper annular chamber 330 exerts a force on the upper surface 310 of the push sleeve 305, driving the push sleeve 305 toward the lower end 110. When the push sleeve 305 is driven to the axially lower limit of its path of travel, the blades 120, 125, 130 (as illustrated by blade 120) are fully retracted." 8:4-19 – "When the valve 340 is selectively opened, as will be described in greater detail below, the fluid also flows from the fluid	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
			lower end **110**. After a short time, the trap **905** is latched in the valve sleeve **605** and obstructs the at least one fluid port **620**." '833 patent, col. 13:44–14:1 "2. The expandable apparatus of claim 1, ***wherein the upper annular end surface of the push sleeve is exposed to the flow of drilling fluid*** in the upper annular chamber whenever a drilling fluid is introduced into the fluid passageway." '833 patent, claim 2		passageway 205 into the lower annular chamber 345, causing the fluid to pressurize the lower annular chamber 330, exerting a force on the lower surface 315 of the push sleeve 305. As described above, the lower surface 315 of the push sleeve 305 has a larger surface area than the upper surface 310. **Therefore, with equal or substantially <u>equal pressures applied to the upper surface 310 and lower surface 315</u> by the fluid, the force applied on the lower surface 315, having the larger surface area, will be greater than the force applied on the upper surface 310**, having the smaller surface area, by virtue of the fact that force is equal to the pressure applied multiplied by the area to which it is applied. **The resultant net force is upward, causing the push sleeve 305 <u>to slide upward, and extending the blades</u>**	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					120, 125, 130 as shown in FIG. 5." 8:28-31 – "When it is desired to retract the blades 120, 125, 130, the valve 340 is closed to inhibit the fluid from flowing into the lower annular chamber 345 and applying a pressure on the lower surface 315 of the push sleeve 305." 8:58-65: – "In the non-limiting example set forth above in which the difference in pressure between inside the expandable apparatus 100 and outside the expandable apparatus 100 is about 1,000 (one thousand) psi (about 6.894 MPa) and the surface area of the upper surface 310 is about 3 in^2 (about 19.3 cm^2), **the net downward force would be about 3,000 (three thousand) lbs (about 13.345 kN) <u>to bias the push sleeve 305 downward</u>**."	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
'833 Patent–claim 14 14. An expandable apparatus, comprising: a tubular body comprising a fluid passageway extending through an inner bore; a push sleeve disposed within the inner bore of the tubular body and coupled to one or more expandable features, the push sleeve comprising a lower surface disposed in a lower annular chamber between the push sleeve and the tubular body and ***configured to move axially responsive to a flow of drilling fluid through the fluid passageway to extend and retract the one or more expandable features***; and a valve independent of the push sleeve within the tubular body configured to selectively control the flow of drilling fluid from the fluid passageway into the lower annular chamber.	***"configured to move axially responsive to a flow of drilling fluid through the fluid passageway to extend and retract the one or more expandable features"***	Configured to move along the axis defined by the tubular body responsive to a flow of drilling fluid through the fluid passageway to extend and retract the one or more expandable features	See "move axially responsive" above.	"configured to move longitudinally upward or downward by drilling fluid . . . to extend and retract"	**Intrinsic Evidence** **'833 Patent**: Claim 14 – "a push sleeve disposed within the inner bore of the tubular body and coupled to one or more expandable features, the push sleeve comprising a lower surface disposed in a lower annular chamber between the push sleeve and the tubular body and configured to **move axially responsive to a flow of drilling fluid through the fluid passageway to extend and retract the one or more expandable features; and** a valve independent of the push sleeve within the tubular body configured to selectively control the flow of drilling fluid from the fluid passageway into the lower annular chamber." FIG. 3	Configured to move along the axis defined by the tubular body responsive to a flow of drilling fluid through the fluid passageway to extend and retract the one or more expandable features.

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					 FIG. 3 7:19-23: – "The push sleeve 305 is disposed encircling the stationary sleeve 215 and configured to slide axially within the tubular body 105 **in response to pressures**	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					applied to one end or the other, <u>or both</u>." 7:29-31: – "In other embodiments, **the push sleeve 305 may comprise <u>an upper surface 310</u> and a lower surface 315** at opposing longitudinal ends." 7:63-8:3 "The pressure causing the fluid to flow through the fluid passageway 205 and into the upper annular chamber 330 exerts a force on the upper surface 310 of the push sleeve 305, driving the push sleeve 305 toward the lower end 110. When the push sleeve 305 is driven to the axially lower limit of its path of travel, the blades 120, 125, 130 (as illustrated by blade 120) are fully retracted." 8:4-19 – "When the valve 340 is selectively opened, as will be described in greater detail below, the fluid also flows from the fluid passageway 205 into the	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					lower annular chamber 345, causing the fluid to pressurize the lower annular chamber 330, exerting a force on the lower surface 315 of the push sleeve 305. As described above, the lower surface 315 of the push sleeve 305 has a larger surface area than the upper surface 310. **Therefore, with equal or substantially <u>equal pressures applied to the upper surface 310 and lower surface 315</u> by the fluid, the force applied on the lower surface 315, having the larger surface area, will be greater than the force applied on the upper surface 310**, having the smaller surface area, by virtue of the fact that force is equal to the pressure applied multiplied by the area to which it is applied. **The resultant net force is upward, causing the push sleeve 305 <u>to slide upward, and extending the blades</u>**	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					120, 125, 130 as shown in FIG. 5." 8:28-31 – "When it is desired to retract the blades 120, 125, 130, the valve 340 is closed to inhibit the fluid from flowing into the lower annular chamber 345 and applying a pressure on the lower surface 315 of the push sleeve 305." 8:58-65: – "In the non-limiting example set forth above in which the difference in pressure between inside the expandable apparatus 100 and outside the expandable apparatus 100 is about 1,000 (one thousand) psi (about 6.894 MPa) and the surface area of the upper surface 310 is about 3 in^2 (about 19.3 cm^2), **the net downward force would be about 3,000 (three thousand) lbs (about 13.345 kN) <u>to bias the push sleeve 305 downward</u>**."	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
'635 Patent–claim 15 15. The method of claim 11, wherein selectively and repeatably moving the actuation member between a first position and a second position relative to a tubular body of the expandable reamer further comprises repeatedly ***traversing at least one pin along a circumferentially extending groove***.	***"traversing at least one pin along a circumferentially extending groove"***	Plain and ordinary meaning	15. The method of claim 11, wherein selectively and repeatably moving the actuation member between a first position and a second position relative to a tubular body of the expandable reamer further comprises repeatedly ***traversing at least one pin along a circumferentially extending groove***. '635 patent, claim 15 "Pin **364** may be disposed within the groove **366** and pin **364** may be affixed to an actuation sleeve **368** of an expandable reamer of the present invention." '635 Patent, at 21:29–32	"moving at least one pin relative to the tubular body along a circumferentially extending groove"	**Intrinsic Evidence** **'635 Patent**: Claim 15 – "The method of claim 11, wherein **selectively and repeatably moving the actuation member** between a first position and a second position **relative to a tubular body** of the expandable reamer further comprises repeatedly **traversing at least one pin along a circumferentially extending groove**." 21:30-31 – "**pin 364** may be **affixed to** an actuation sleeve 368 of an expandable reamer" 21:36-48 – "Further, groove 366 may be configured to **extend about the entire circumference of the sleeve 362** in a repeating, continuous manner, so that the **pin 364 may be caused to repeatedly traverse**	Plain and ordinary meaning.

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					within the groove 366 and about the circumference of the sleeve 362. For instance, groove 366 may comprise a series of alternating upwardly sloping and downwardly sloping arcuate paths. **To facilitate movement of the pin 364 within the groove 366**, it may be advantageous to configure the actuation sleeve 368 so that relatively high flow rates of drilling fluid cause the actuation sleeve 368 and pin 364 to be forced downward. Further the actuation sleeve 368 may be configured with a restoring upward force by way of a biasing element as described hereinabove." **Extrinsic Evidence** WEBSTER'S UNABRIDGED DICTIONARY (2d Ed. 2001), at 2014	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					• traverse – "to pass or move over, along or through" WEBSTER'S THIRD NEW INT'L DICTIONARY (2002), at 2433 • traverse – "to move along or through (something)"	
'635 Patent–claim 1 1. An expandable reamer for drilling a subterranean formation, comprising: a tubular body; at least one blade carried by the tubular body; and an actuation member ***selectively and repeatably positionable*** between a first position within the tubular body and a second position within the tubular body, and configured to maintain the expandable reamer in a first operating condition during a flow of drilling fluid through the tubular body when the actuation member is positioned in the first position	***"selectively and repeatably positionable"***	Plain and ordinary meaning	"an actuation member ***selectively and repeatably positionable*** between a first position within the tubular body and a second position within the tubular body, and configured to maintain the expandable reamer in a first operating condition during a flow of drilling fluid through the tubular body when the actuation member is positioned in the first position and to maintain the expandable reamer in a second operating condition during a substantially identical flow of drilling fluid through the tubular body when the actuation member is positioned in the	"selectively positionable again and again while the tool is in the borehole"	**Intrinsic Evidence** **'635 Patent**: Claims 1, 19 Claim 1 – "an actuation member **selectively and repeatably positionable** between a first position within the tubular body and a second position within the tubular body, and configured to maintain the expandable reamer in a first operating condition during a flow of drilling fluid through the tubular body when the actuation member is positioned in the first position and to maintain the expandable reamer in a	Selectively and repeatably positionable while the tool is in the borehole.

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
and to maintain the expandable reamer in a second operating condition during a substantially identical flow of drilling fluid through the tubular body when the actuation member is positioned in the second position. <u>Other claims:</u> '635 Patent–claim 19 '418 Patent–claim 10			second position." '635 patent, claim 1 "Alternatively, the restriction element 266 and actuation sleeve 240 may be configured to allow for wireline tools or other means to reset the position of the actuation sleeve 240 and thereby reset the operating state of the expandable reamer 210 while within the borehole." '635 patent, col. 20: 32–37; '418 patent, col. 20:43–48.		second operating condition during a substantially identical flow of drilling fluid through the tubular body when the actuation member is positioned in the second position." 4:53-67 – "Moreover, a flow restriction element may be disposed within the drill string to actuate the expansion of the expandable reamer. For instance, a ball may be disposed within the drilling fluid, traveling therein, ultimately seating within an actuation sleeve disposed at a first position. Pressure from the drilling fluid may subsequently build to force the ball and actuation sleeve, optionally held in place by way of a shear pin or other frangible member, into a second position, thereby actuating the expansion of the expandable reamer. Such a configuration may require that once the movable blades	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					are expanded by the ball, in order to contract the movable blades, the flow is diverted around the seated ball to allow a maximum fluid flow rate through the tool. Thus, the expandable reamer may be configured as a "one shot" tool, which may be reset after actuation." 5:20-23 – "Thus, the reamer may be caused to assume different operational conditions as the pin may be caused to traverse within the groove of the pin guide." 17:46-50 – "Therefore, the expandable reamer 410 as depicted in FIGS. 1F and 1G may be a "one shot" tool, wherein operation without drilling fluid communication to the moveable blades 412 and 414 may not be possible without resetting the actuation sleeve 440 position as shown in FIG 1F." 19:49-66 – "**Actuation sleeve 240 may be**	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					positioned longitudinally in a first position near the upper longitudinal end of the tubular body 232, so that the radial periphery of upper end 250 of the actuation sleeve 240 is positioned to seal against the actuation seal 243. Thus, drilling fluid (not shown) may pass through actuation sleeve 240, passing longitudinally by movable blades 212 and 214. Actuation seal 243 and lower sleeve seal 245 may prevent drilling fluid from interacting with movable blades 212 and 214, so long as the actuation sleeve 240 is appropriately positioned. The actuation sleeve 240 may be releasably restrained by way of shear pins, interlocking members, frictional elements, or frangible members, or otherwise may be configured to maintain its longitudinal position under a wide range of operating conditions.	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					However, **a restriction element 266 may be deployed within the drilling fluid stream and may ultimately be disposed within sleeve seat 252**, as shown in FIG. 2B." 20:2-8 – "However, **drilling fluid pressure may cause the actuation sleeve 240 to be displaced longitudinally** to a position shown in FIG. 2B. Upon contact between actuation seal 243 and the actuation sleeve 240 ceasing, **drilling fluid may pass into the annulus 217 formed between inner surfaces 221 and 223 of moveable blades 212 and 214**, respectively, and the actuation sleeve 240." 20:28-37 – "Thus, the expandable reamer 210 **may be configured as a "one shot" tool, wherein once the movable blades 212 and 214 are allowed to expand, the actuation system may**	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					not be reset without removing the tool from the borehole. Alternatively, the restriction element 266 and actuation sleeve 240 may be configured to allow for wireline tools or other means to reset the position of the actuation sleeve 240 and thereby reset the operating state of the expandable reamer 210 while within the borehole." 21:24-26 – "Thus, the position of an actuation sleeve 368 may be adjusted by way of a pin guide assembly 360 and thus may cause movable blades of an expandable reamer to deploy or retract." 21:28-34 – "FIG. 3 shows a **pin guide assembly 360** wherein a **groove 366 is formed within sleeve 362. Pin 364 may be disposed within the groove 366** and pin 364 may be **affixed to an actuation sleeve 368** of an	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					expandable reamer of the present invention. Thus, **as the pin 364 may be caused to move within the groove 366, actuation sleeve 368 may be caused to move within an expandable reamer**." 21:36-40 – "Further, groove 366 may be configured to extend about the circumference of the sleeve 362 in a repeating, continuous manner, so that the pin 364 **may be caused to repeatedly traverse within the groove 366** and about the circumference of the sleeve 362." 20:60-63 – "Of course, as mentioned above, the pattern **may continue around the entire circumference** of the sleeve 362, and may be continuous **so that the sequence may be repeated any number of times**." 22:10-13 – The present invention "contemplates that	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					rotation of pin 364 within pin guide sleeve assembly 360 may also cause actuation of movable blades within an expandable reamer of the present invention, without limitation." **'418 Patent**: Claim 10 4:57-5:4 – "Moreover, a flow restriction element may be disposed within the drill string to actuate the expansion of the expandable reamer. For instance, a ball may be disposed within the drilling fluid, traveling therein, ultimately seating within an actuation sleeve disposed at a first position. Pressure from the drilling fluid may subsequently build to force the ball and actuation sleeve, optionally held in place by way of a	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					shear pin or other frangible member, into a second position, thereby actuating the expansion of the expandable reamer. Such a configuration may require that once the movable blades are expanded by the ball, in order to contract the movable blades, the flow is diverted around the seated ball to allow a maximum fluid flow rate through the tool. Thus, the expandable reamer may be configured as a "one shot" tool, which may be reset after actuation." 5:25-28 – "Thus, the reamer may be caused to assume different operational conditions as the pin may be caused to traverse within the groove of the pin guide." 17:58-63 – "Therefore, the expandable reamer 410 as depicted in FIGS. 1F and 1G may be a "one shot" tool, wherein operation without drilling fluid communication	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					to the moveable blades 412 and 414 may not be possible without resetting the actuation sleeve 440 position as shown in FIG 1F." 19:60-20:10 – "**Actuation sleeve 240 may be positioned longitudinally in a first position near the upper longitudinal end of the tubular body 232**, so that the radial periphery of upper end 250 of the actuation sleeve 240 is positioned to seal against the actuation seal 243. Thus, drilling fluid (not shown) may pass through actuation sleeve 240, passing longitudinally by movable blades 212 and 214. Actuation seal 243 and lower sleeve seal 245 may prevent drilling fluid from interacting with movable blades 212 and 214, so long as the actuation sleeve 240 is appropriately positioned. The actuation sleeve 240 may be releasably restrained	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					by way of shear pins, interlocking members, frictional elements, or frangible members, or otherwise may be configured to maintain its longitudinal position under a wide range of operating conditions. However, **a restriction element 266 may be deployed within the drilling fluid stream and may ultimately be disposed within sleeve seat 252**, as shown in FIG. 2B." 20:13-19 – "However, **drilling fluid pressure may cause the actuation sleeve 240 to be displaced longitudinally** to a position shown in FIG. 2B. Upon contact between actuation seal 243 and the actuation sleeve 240 ceasing, **drilling fluid may pass into the annulus 217 formed between inner surfaces 221 and 223 of moveable blades 212 and 214**, respectively,	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					and the actuation sleeve 240." 20:39-48 – "Thus, the expandable reamer 210 **may be configured as a "one shot" tool, wherein once the movable blades 212 and 214 are allowed to expand, the actuation system may not be reset without removing the tool from the borehole**. Alternatively, the restriction element 266 and actuation sleeve 240 may be configured to allow for wireline tools or other means to reset the position of the actuation sleeve 240 and thereby reset the operating state of the expandable reamer 210 while within the borehole." 21:35-38 – "Thus, the position of an actuation sleeve 368 may be adjusted by way of a pin guide assembly 360 and thus may cause movable blades of an	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					expandable reamer to deploy or retract." 21:39-45 – "FIG. 3 shows **a pin guide assembly 360** wherein a **groove 366 is formed within sleeve 362**. **Pin 364 may be disposed within the groove 366** and pin 364 may be **affixed to an actuation sleeve 368** of an expandable reamer of the present invention. Thus, **as the pin 364 may be caused to move within the groove 366, actuation sleeve 368 may be caused to move within an expandable reamer**." 21:47-51 – "Further, groove 366 may be configured to extend about the circumference of the sleeve 362 in a repeating, continuous manner, so that the pin 364 **may be caused to repeatedly traverse within the groove 366** and about the circumference of the sleeve 362."	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					21:10-13 – "Of course, as mentioned above, the pattern **may continue around the entire circumference** of the sleeve 362, and may be continuous **so that the sequence may be repeated any number of times**." 22:21-25 –The present invention "contemplates that rotation of pin 364 within pin guide sleeve assembly 360 may also cause actuation of movable blades within an expandable reamer of the present invention, without limitation." **Extrinsic Evidence** THE AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE (3rd Ed. 1992), at 1530. • repeatable – "capable of being done again"	
'635 Patent–claim 11 11. A method of operating an expandable reamer, the method comprising:	***"selectively and repeatably moving"***	Plain and ordinary meaning	*See* "selectively and repeatably positionable" above	"selectively moving again and again"	**Intrinsic Evidence** **'635 Patent**:	Plain and ordinary meaning.

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
selectively and repeatably moving an actuation member between a first position and a second position relative to a tubular body of the expandable reamer while the expandable reamer is positioned downhole; operating the expandable reamer in a first operating condition while flowing drilling fluid through the tubular body at a first flow rate by maintaining the actuation member in the first position; and operating the expandable reamer in a second operating condition while flowing drilling fluid through the tubular body at a flow rate substantially the same as the first flow rate by maintaining the actuation member in the second position. Other claims: '635 Patent–claims 12-13, 15 '418 Patent–claim 3, 6			"***selectively and repeatably moving*** an actuation member between a first position and a second position relative to a tubular body of the expandable reamer while the expandable reamer is positioned downhole" '635 patent, claim 11		Claims 11, 12, 13, 15 Claim 11 – "***selectively and repeatably moving*** an actuation member between a first position and a second position relative to a tubular body of the expandable reamer while the expandable reamer is positioned downhole" 4:53-67 – "Moreover, a flow restriction element may be disposed within the drill string to actuate the expansion of the expandable reamer. For instance, a ball may be disposed within the drilling fluid, traveling therein, ultimately seating within an actuation sleeve disposed at a first position. Pressure from the drilling fluid may subsequently build to force the ball and actuation sleeve, optionally held in place by way of a shear pin or other frangible member, into a second position, thereby actuating	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					the expansion of the expandable reamer. Such a configuration may require that once the movable blades are expanded by the ball, in order to contract the movable blades, the flow is diverted around the seated ball to allow a maximum fluid flow rate through the tool. Thus, the expandable reamer may be configured as a "one shot" tool, which may be reset after actuation." 5:20-23 – "Thus, the reamer may be caused to assume different operational conditions as the pin may be caused to traverse within the groove of the pin guide." 17:46-50 – "Therefore, the expandable reamer 410 as depicted in FIGS. 1F and 1G may be a "one shot" tool, wherein operation without drilling fluid communication to the moveable blades 412 and 414 may not be possible without resetting the	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					actuation sleeve 440 position as shown in FIG 1F." 19:49-66 – "**Actuation sleeve 240 may be positioned longitudinally in a first position near the upper longitudinal end of the tubular body 232**, so that the radial periphery of upper end 250 of the actuation sleeve 240 is positioned to seal against the actuation seal 243. Thus, drilling fluid (not shown) may pass through actuation sleeve 240, passing longitudinally by movable blades 212 and 214. Actuation seal 243 and lower sleeve seal 245 may prevent drilling fluid from interacting with movable blades 212 and 214, so long as the actuation sleeve 240 is appropriately positioned. The actuation sleeve 240 may be releasably restrained by way of shear pins, interlocking members, frictional elements, or	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					frangible members, or otherwise may be configured to maintain its longitudinal position under a wide range of operating conditions. However, **a restriction element 266 may be deployed within the drilling fluid stream and may ultimately be disposed within sleeve seat 252**, as shown in FIG. 2B." 20:2-8 – "However, **drilling fluid pressure may cause the actuation sleeve 240 to be displaced longitudinally** to a position shown in FIG. 2B. Upon contact between actuation seal 243 and the actuation sleeve 240 ceasing, **drilling fluid may pass into the annulus 217 formed between inner surfaces 221 and 223 of moveable blades 212 and 214**, respectively, and the actuation sleeve 240." 20:28-37 – "Thus, the expandable reamer 210 **may**	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					be configured as a "one shot" tool, wherein once the movable blades 212 and 214 are allowed to expand, the actuation system may not be reset without removing the tool from the borehole. Alternatively, the restriction element 266 and actuation sleeve 240 may be configured to allow for wireline tools or other means to reset the position of the actuation sleeve 240 and thereby reset the operating state of the expandable reamer 210 while within the borehole." 21:24-26 – "Thus, the position of an actuation sleeve 368 may be adjusted by way of a pin guide assembly 360 and thus may cause movable blades of an expandable reamer to deploy or retract." 21:28-34 – "FIG. 3 shows a **pin guide assembly 360** wherein a **groove 366 is**	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					formed within sleeve 362. Pin 364 may be disposed within the groove 366 and pin 364 may be **affixed to an actuation sleeve 368** of an expandable reamer of the present invention. Thus, **as the pin 364 may be caused to move within the groove 366, actuation sleeve 368 may be caused to move within an expandable reamer**." 21:36-40 – "Further, groove 366 may be configured to extend about the circumference of the sleeve 362 in a repeating, continuous manner, so that the pin 364 **may be caused to repeatedly traverse within the groove 366** and about the circumference of the sleeve 362." 20:60-63 – "Of course, as mentioned above, the pattern **may continue around the entire circumference** of the sleeve 362, and may be	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					continuous **so that the sequence may be repeated any number of times**." 22:10-13 – The present invention "contemplates that rotation of pin 364 within pin guide sleeve assembly 360 may also cause actuation of movable blades within an expandable reamer of the present invention, without limitation." **'418 Patent**: Claims 3, 6 4:57-5:4 – "Moreover, a flow restriction element may be disposed within the drill string to actuate the expansion of the expandable reamer. For instance, a ball may be disposed within the drilling fluid, traveling therein, ultimately seating within an actuation sleeve disposed at a first position. Pressure from the drilling	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					fluid may subsequently build to force the ball and actuation sleeve, optionally held in place by way of a shear pin or other frangible member, into a second position, thereby actuating the expansion of the expandable reamer. Such a configuration may require that once the movable blades are expanded by the ball, in order to contract the movable blades, the flow is diverted around the seated ball to allow a maximum fluid flow rate through the tool. Thus, the expandable reamer may be configured as a "one shot" tool, which may be reset after actuation." 5:25-28 – "Thus, the reamer may be caused to assume different operational conditions as the pin may be caused to traverse within the groove of the pin guide." 17:58-63 – "Therefore, the expandable reamer 410 as	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					depicted in FIGS. 1F and 1G may be a "one shot" tool, wherein operation without drilling fluid communication to the moveable blades 412 and 414 may not be possible without resetting the actuation sleeve 440 position as shown in FIG 1F." 19:60-20:10 – "**Actuation sleeve 240 may be positioned longitudinally in a first position near the upper longitudinal end of the tubular body 232**, so that the radial periphery of upper end 250 of the actuation sleeve 240 is positioned to seal against the actuation seal 243. Thus, drilling fluid (not shown) may pass through actuation sleeve 240, passing longitudinally by movable blades 212 and 214. Actuation seal 243 and lower sleeve seal 245 may prevent drilling fluid from interacting with movable blades 212 and 214, so long	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					as the actuation sleeve 240 is appropriately positioned. The actuation sleeve 240 may be releasably restrained by way of shear pins, interlocking members, frictional elements, or frangible members, or otherwise may be configured to maintain its longitudinal position under a wide range of operating conditions. However, **a restriction element 266 may be deployed within the drilling fluid stream and may ultimately be disposed within sleeve seat 252**, as shown in FIG. 2B." 20:13-19 – "However, **drilling fluid pressure may cause the actuation sleeve 240 to be displaced longitudinally** to a position shown in FIG. 2B. Upon contact between actuation seal 243 and the actuation sleeve 240 ceasing, **drilling fluid may pass into the annulus 217 formed**	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					between inner surfaces 221 and 223 of moveable blades 212 and 214, respectively, and the actuation sleeve 240." 20:39-48 – "Thus, the expandable reamer 210 **may be configured as a "one shot" tool, wherein once the movable blades 212 and 214 are allowed to expand, the actuation system may not be reset without removing the tool from the borehole**. Alternatively, the restriction element 266 and actuation sleeve 240 may be configured to allow for wireline tools or other means to reset the position of the actuation sleeve 240 and thereby reset the operating state of the expandable reamer 210 while within the borehole." 21:35-38 – "Thus, the position of an actuation sleeve 368 may be adjusted by way of a pin guide	

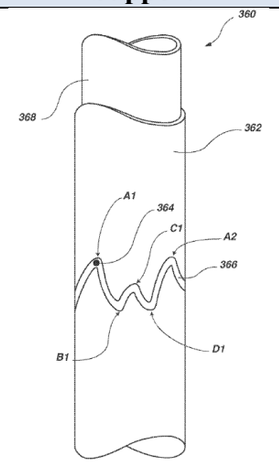
Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					assembly 360 and thus may cause movable blades of an expandable reamer to deploy or retract." 21:39-45 – "FIG. 3 shows **a pin guide assembly 360** wherein a **groove 366 is formed within sleeve 362**. **Pin 364 may be disposed within the groove 366** and pin 364 may be **affixed to an actuation sleeve 368** of an expandable reamer of the present invention. Thus, **as the pin 364 may be caused to move within the groove 366, actuation sleeve 368 may be caused to move within an expandable reamer**." 21:47-51 – "Further, groove 366 may be configured to extend about the circumference of the sleeve 362 in a repeating, continuous manner, so that the pin 364 **may be caused to repeatedly traverse within the groove 366** and	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					about the circumference of the sleeve 362." 21:10-13 – "Of course, as mentioned above, the pattern **may continue around the entire circumference** of the sleeve 362, and may be continuous **so that the sequence may be repeated any number of times**." 22:21-25 –The present invention "contemplates that rotation of pin 364 within pin guide sleeve assembly 360 may also cause actuation of movable blades within an expandable reamer of the present invention, without limitation." **Extrinsic Evidence** THE AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE (3rd Ed. 1992), at 1530. • repeatable – "capable of being done again"	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
'635 Patent–claim 1 1. An expandable reamer for drilling a subterranean formation, comprising: a tubular body; at least one blade carried by the tubular body; and an actuation member selectively and repeatably positionable between ***a first position*** within the tubular body and a second position within the tubular body, and configured to maintain the expandable reamer in a first operating condition during a flow of drilling fluid through the tubular body when the actuation member is positioned in ***the first position*** and to maintain the expandable reamer in a second operating condition during a substantially identical flow of drilling fluid through the tubular body when the actuation member is	***"first position"***	Plain and ordinary meaning	*See* **"actuation member"** above "Many other configurations for limiting or selectively positioning the actuation sleeve 40 of the present invention may be utilized, including collets, pins, frangible elements, seating surfaces, or other elements of mechanical design as known in the art." '635 patent, col. 14:56–62; '418 patent, col. 15:2–6 "3. The expandable reamer of claim 2, further comprising a pin guide assembly comprised within a circumferentially extending groove, ***the circumferentially extending groove comprising a pattern of peaks and valleys***." '635 patent, claim 3	"a first peak or valley"	**Intrinsic Evidence** **'635 patent:** Claims 1, 4, 5, 11-15, 19 Claim 1 – "an actuation member selectively and repeatably positionable between **a first position** within the tubular body and **a second position** within the tubular body, and configured to maintain the expandable reamer in a first operating condition during a flow of drilling fluid through the tubular body when the actuation member is positioned in **the first position** and to maintain the expandable reamer in a second operating condition during a substantially identical flow of drilling fluid through the tubular body when the actuation member is positioned in the **second position**."	Plain and ordinary meaning.

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
positioned in the second position. Other claims: '635 Patent - claims 4, 5, 11–15, 19 '418 Patent - claims 3, 7, 10, 13, 14, 18					Claim 2 – "The expandable reamer of claim 1, further comprising a biasing element positioned and configured to bias the actuation member **to a third position** within the tubular body" Claim 3 – "The expandable reamer of claim 2**,** further comprising a pin guide assembly comprised within a **circumferentially extending groove**, the circumferentially extending groove **comprising a pattern of peaks and valleys**" Claim 4 – "The expandable reamer of claim 1, wherein each of the first position, the second position and the third position **comprise different longitudinal positions** within the tubular body" Claim 5 – "The expandable reamer of claim 1**,** wherein each of the **first position**, the **second position** and the	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					third position further **comprise <u>different</u> circumferential positions** within the tubular body" FIG. 3	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					 FIG. 3 4:53-67 – "Moreover, a flow restriction element may be disposed within the drill string to actuate 55 the expansion of the expandable reamer. For instance, a ball may be disposed within the drilling fluid, traveling therein, ultimately seating within an actuation sleeve disposed at a first position. Pressure from the drilling fluid may subsequently build to force the ball and actuation sleeve, optionally 60 held in place by way of a	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					shear pin or other frangible member, into a second position, thereby actuating the expansion of the expandable reamer. Such a configuration may require that once the movable blades are expanded by the ball, in order to contract the movable blades, the flow is diverted around the 65 seated ball to allow a maximum fluid flow rate through the tool. Thus, the expandable reamer may be configured as a "one shot" tool, which may be reset after actuation." 5:3-7 – "More specifically, a pin guide may comprise a cylinder with a groove having alternating upwardly sloping and downwardly sloping arcuate paths formed at least partially along the circumference of the cylinder and a pin affixed to an actuation sleeve, the pin disposed within the groove."	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					21:36-40 – "Further, groove 366 may be configured to extend about the entire circumference of the sleeve 362 in a repeating, continuous manner, so that the pin 364 may be caused to repeatedly traverse within the groove 366 and about the circumference of the sleeve 362." 21:49-66: – "[B]eginning at **position A1** as shown in FIG. 3, the pin 364 may be traverse within the groove 366 to **position B1** by way of a relatively high flow rate of drilling fluid. . . . Sufficient reduction of the flow rate of drilling fluid may cause . . . the pin 364 and actuation sleeve 368 to move upward into **position C1**. . . . Of course, as mentioned above, the pattern may continue around the entire circumference of the sleeve 362, and may be continuous so that the sequence may be	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					repeated any number of times." 21:28-21:32: – "FIG. 3 shows a pin guide assembly 360 wherein a groove 366 is formed within sleeve 362. Pin 364 may be disposed within the groove 366 and pin 364 may be affixed to an actuation sleeve 368 of an expandable reamer of the present invention." 21:49-66 – "Therefore, considering the **beginning at position A1** as shown in FIG. 3, the pin 364 may be traversed within the groove 366 **to position B1** by way of a relatively high flow rate of drilling fluid, for instance, 800 gallons per minute. Sufficient reduction of the flow rate of drilling fluid may cause the restoring force of a biasing element to cause the pin 364 and actuation sleeve 368 **to move upward, into position C1**. Similarly, the pin 364 and actuation	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					sleeve 368 may be caused **to move to position D1** via a relatively high flow rate of drilling fluid. Further, sufficient reduction of the flow rate of drilling fluid may cause the pin 364 and actuation sleeve 368 to move to position A2. Of course, as mentioned above, the pattern may continue around the entire circumference of the sleeve 362, and may be continuous so that the sequence may be repeated any number of times. For instance, the groove 366 as shown in FIG. 3 may include peaks and valleys B2, C2, D2, A3, B3, C3, and D3 (not shown) on the portion of the circumference of the sleeve 362 not visible in FIG. 3." 13:3-53 – "Actuation sleeve 40 may be positioned longitudinally in a first position, where apertures or ports 42 are above actuation seal 43. Drilling fluid (not shown) may pass through	

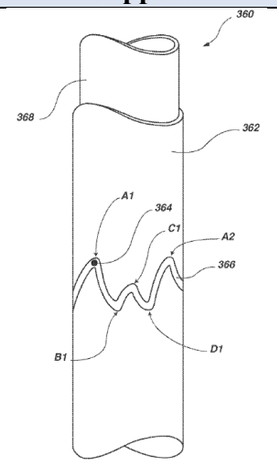
Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					actuation sleeve 40, thus passing by movable blades 12 and 14. Actuation seal 43 and lower sleeve seal 45 may prevent drilling fluid from interacting with movable blades 12 and 14. Further, sleeve-biasing element 44 may provide a bias force to actuation sleeve 40 to maintain its longitudinal position. However, as drilling fluid passes through actuation sleeve 40, a reduced cross-sectional orifice 50 may produce a force upon the actuation sleeve 40. As known in the art, drag of the drilling fluid through the reduced cross-sectional orifice 50 may cause a downward longitudinal force to develop on the actuation sleeve 40. As the drilling fluid force on the actuation sleeve 40 exceeds the force generated by the sleeve-biasing element 44, the actuation sleeve 40 may move longitudinally downward	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					thereagainst. **Thus, the longitudinal position of the actuation sleeve 40 may be modified by way of changing the flow rate of the drilling fluid passing therethrough.** Alternatively, a collet or shear pins (not shown) may be used to resist the downward longitudinal force until the shear point of the shear pin or frictional force of the collet is exceeded. Thus, the downward longitudinal force generated by the drilling fluid moving through the reduced cross-sectional area orifice 50 may cause a frangible or frictional element to release the actuation sleeve 40 and may cause the actuation sleeve 40 to move longitudinally downward. Further, the longitudinal position of the actuation sleeve 40 may allow drilling fluid to be diverted to the inner surfaces 21 and 23 of	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					movable blades 12 and 14, respectively, via apertures or ports 42. In opposition to the force of the drilling fluid upon the inner surfaces 21 and 23 of movable blades 12 and 14, blade-biasing elements 24, 26, 28, and 30 may be configured to provide an inward radial or lateral force upon movable blades 12 and 14. However, drilling fluid acting upon the inner surfaces 21 and 23 may generate a force that exceeds the force applied to the movable blades 12 and 14 by way of the blade-biasing elements 24, 26, 28, and 30, and movable blades 12 and 14 may, therefore, move radially or laterally outwardly. Thus, expandable reamer 10 is shown in an expanded state in FIG. 1B, wherein movable blades 12 and 14 are disposed at their outermost radial or lateral position.	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					Thus, FIG. 1B shows an operational state of expandable reamer 10 wherein actuation sleeve 40 is positioned longitudinally so that apertures or ports 42 allow drilling fluid flowing through expandable reamer 10 to pressurize the annulus 17 formed between the outer surface of actuation sleeve 40 and inner radial surface of movable blades 12 and 14 to force movable blade 12 against blade-biasing elements 24 and 26, as well as forcing movable blade 14 against blade-biasing elements 28 and 30." **'418 patent:** Claim 6 – "The method of claim 1, further comprising selectively and repeatably moving an actuation member between ***a first longitudinal position*** and ***a second longitudinal position***	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					relative to a tubular body of the expandable reamer" Claim 13 – "The expandable reamer of claim 11, wherein each of the first position, the second position and the third position ***comprise different longitudinal positions*** within the tubular body" FIG. 3	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					 FIG. 3 4:57-5:4 – "Moreover, a flow restriction element may be disposed within the drill string to actuate 55 the expansion of the expandable reamer. For instance, a ball may be disposed within the drilling fluid, traveling therein, ultimately seating within an actuation sleeve disposed at a first position. Pressure from the drilling fluid may subsequently build to force the ball and actuation sleeve, optionally 60 held in place by way of a	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					shear pin or other frangible member, into a second position, thereby actuating the expansion of the expandable reamer. Such a configuration may require that once the movable blades are expanded by the ball, in order to contract the movable blades, the flow is diverted around the 65 seated ball to allow a maximum fluid flow rate through the tool. Thus, the expandable reamer may be configured as a "one shot" tool, which may be reset after actuation." 5:7-11 – "More specifically, a pin guide may comprise a cylinder with a groove having alternating upwardly sloping and downwardly sloping arcuate paths formed at least partially along the circumference of the cylinder and a pin affixed to an actuation sleeve, the pin disposed within the groove."	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					21:47-51 – "Further, groove 366 may be configured to extend about the entire circumference of the sleeve 362 in a repeating, continuous manner, so that the pin 364 may be caused to repeatedly traverse within the groove 366 and about the circumference of the sleeve 362." 21:61-22:7 – "[B]eginning at ***position A1*** as shown in FIG. 3, the pin 364 may be traverse within the groove 366 to ***position B1*** by way of a relatively high flow rate of drilling fluid. . . . Sufficient reduction of the flow rate of drilling fluid may cause . . . the pin 364 and actuation sleeve 368 to move upward into ***position C1***. . . . Of course, as mentioned above, the pattern may continue around the entire circumference of the sleeve 362, and may be continuous so that the sequence may be	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					repeated any number of times." 21:39-43 – "FIG. 3 shows a pin guide assembly 360 wherein a groove 366 is formed within sleeve 362. Pin 364 may be disposed within the groove 366 and pin 364 may be affixed to an actuation sleeve 368 of an expandable reamer of the present invention." 21:61-22:11 – "Therefore, considering the **beginning at position A1** as shown in FIG. 3, the pin 364 may be traversed within the groove 366 **to position B1** by way of a relatively high flow rate of drilling fluid, for instance, 800 gallons per minute. Sufficient reduction of the flow rate of drilling fluid may cause the restoring force of a biasing element to cause the pin 364 and actuation sleeve 368 **to move upward, into position C1**. Similarly, the pin 364 and actuation	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					sleeve 368 may be caused **to move to position D1** via a relatively high flow rate of drilling fluid. Further, sufficient reduction of the flow rate of drilling fluid may cause the pin 364 and actuation sleeve 368 to move to position A2. Of course, as mentioned above, the pattern may continue around the entire circumference of the sleeve 362, and may be continuous so that the sequence may be repeated any number of times. For instance, the groove 366 as shown in FIG. 3 may include peaks and valleys B2, C2, D2, A3, B3, C3, and D3 (not shown) on the portion of the circumference of the sleeve 362 not visible in FIG. 3." 13:14-64: - "Actuation sleeve 40 may be positioned longitudinally in a first position, where apertures or ports 42 are above actuation seal 43. Drilling fluid (not shown) may pass through	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					actuation sleeve 40, thus passing by movable blades 12 and 14. Actuation seal 43 and lower sleeve seal 45 may prevent drilling fluid from interacting with movable blades 12 and 14. Further, sleeve-biasing element 44 may provide a bias force to actuation sleeve 40 to maintain its longitudinal position. However, as drilling fluid passes through actuation sleeve 40, a reduced cross-sectional orifice 50 may produce a force upon the actuation sleeve 40. As known in the art, drag of the drilling fluid through the reduced cross-sectional orifice 50 may cause a downward longitudinal force to develop on the actuation sleeve 40. As the drilling fluid force on the actuation sleeve 40 exceeds the force generated by the sleeve-biasing element 44, the actuation sleeve 40 may move longitudinally downward	

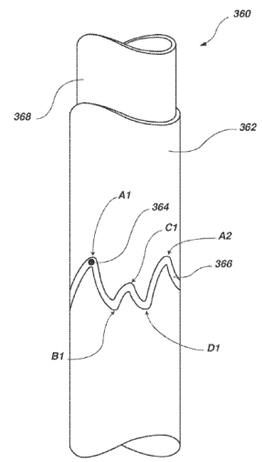
Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					thereagainst. **Thus, the longitudinal position of the actuation sleeve 40 may be modified by way of changing the flow rate of the drilling fluid passing therethrough.** Alternatively, a collet or shear pins (not shown) may be used to resist the downward longitudinal force until the shear point of the shear pin or frictional force of the collet is exceeded. Thus, the downward longitudinal force generated by the drilling fluid moving through the reduced cross-sectional area orifice 50 may cause a frangible or frictional element to release the actuation sleeve 40 and may cause the actuation sleeve 40 to move longitudinally downward. Further, the longitudinal position of the actuation sleeve 40 may allow drilling fluid to be diverted to the inner surfaces 21 and 23 of	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					movable blades 12 and 14, respectively, via apertures or ports 42. In opposition to the force of the drilling fluid upon the inner surfaces 21 and 23 of movable blades 12 and 14, blade-biasing elements 24, 26, 28, and 30 may be configured to provide an inward radial or lateral force upon movable blades 12 and 14. However, drilling fluid acting upon the inner surfaces 21 and 23 may generate a force that exceeds the force applied to the movable blades 12 and 14 by way of the blade-biasing elements 24, 26, 28, and 30, and movable blades 12 and 14 may, therefore, move radially or laterally outwardly. Thus, expandable reamer 10 is shown in an expanded state in FIG. 1B, wherein movable blades 12 and 14 are disposed at their outermost radial or lateral position.	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					Thus, FIG. 1B shows an operational state of expandable reamer 10 wherein actuation sleeve 40 is positioned longitudinally so that apertures or ports 42 allow drilling fluid flowing through expandable reamer 10 to pressurize the annulus 17 formed between the outer surface of actuation sleeve 40 and inner radial surface of movable blades 12 and 14 to force movable blade 12 against blade-biasing elements 24 and 26, as well as forcing movable blade 14 against blade-biasing elements 28 and 30." **Extrinsic Evidence** MERRIAM WEBSTER'S COLLEGIATE DICTIONARY (10th ed. 1997) at 323, 908. • different – "partially or totally unlike in nature, form, or quality"	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					• position – "the point or area occurred by a physical object"	
'635 Patent–claim 1 1. An expandable reamer for drilling a subterranean formation, comprising: a tubular body; at least one blade carried by the tubular body; and an actuation member selectively and repeatably positionable between a first position within the tubular body and ***a second position*** within the tubular body, and configured to maintain the expandable reamer in a first operating condition during a flow of drilling fluid through the tubular body when the actuation member is positioned in the first position and to maintain the expandable reamer in a second operating condition during a substantially identical flow of	***"second position"***	Plain and ordinary meaning	*See* "first position" above	"a second peak or valley"	**Intrinsic Evidence** **'635 Patent:** Claims 1, 4, 5, 11-15, 19 Claim 1 – "an actuation member selectively and repeatably positionable between a first position within the tubular body and **a second position** within the tubular body, and configured to maintain the expandable reamer in a first operating condition during a flow of drilling fluid through the tubular body when the actuation member is positioned in the first position and to maintain the expandable reamer in a second operating condition during a substantially identical flow of drilling fluid through the tubular	Plain and ordinary meaning.

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
drilling fluid through the tubular body when the actuation member is positioned in ***the second position***. Other claims: '635 Patent–claims 4, 5, 11–15, 19 '418 Patent–claims 3, 7, 10, 13, 14, 18					body when the actuation member is positioned in **the second position**." Claim 4 – "The expandable reamer of claim 1, wherein each of the first position, the second position and the third position **comprise different longitudinal positions** within the tubular body" Claim 5 – "The expandable reamer of claim 1**,** wherein each of the **first position**, the **second position** and the **third position** further **comprise different circumferential positions** within the tubular body Claim 14 – "The expandable reamer of claim 11, further comprising biasing the actuation member to a third position **prior to selectively moving the actuation member to one of the first position and the second position**."	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					FIG. 3  FIG. 3 4:53-67 – "Moreover, a flow restriction element may be disposed within the drill string to actuate 55 the expansion of the expandable reamer. For instance, a ball may be disposed within the drilling fluid, traveling therein, ultimately seating within an actuation sleeve disposed at a first position. Pressure from the drilling fluid may subsequently build	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					to force the ball and actuation sleeve, optionally 60 held in place by way of a shear pin or other frangible member, into a second position, thereby actuating the expansion of the expandable reamer. Such a configuration may require that once the movable blades are expanded by the ball, in order to contract the movable blades, the flow is diverted around the 65 seated ball to allow a maximum fluid flow rate through the tool. Thus, the expandable reamer may be configured as a "one shot" tool, which may be reset after actuation." 5:3-7 – "More specifically, a pin guide may comprise a cylinder with a groove having alternating upwardly sloping and downwardly sloping arcuate paths formed at least partially along the circumference of the cylinder and a pin affixed to	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					an actuation sleeve, the pin disposed within the groove." 21:36-40 – "Further, groove 366 may be configured to extend about the entire circumference of the sleeve 362 in a repeating, continuous manner, so that the pin 364 may be caused to repeatedly traverse within the groove 366 and about the circumference of the sleeve 362." 21:49-66 – "[B]eginning at **position A1** as shown in FIG. 3, the pin 364 may be traverse within the groove 366 to **position B1** by way of a relatively high flow rate of drilling fluid. . . . Sufficient reduction of the flow rate of drilling fluid may cause . . . the pin 364 and actuation sleeve 368 to move upward into **position C1**. . . . Of course, as mentioned above, the pattern may continue around the entire circumference of the sleeve	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					362, and may be continuous so that the sequence may be repeated any number of times." 21:28-21:32 – "FIG. 3 shows a pin guide assembly 360 wherein a groove 366 is formed within sleeve 362. Pin 364 may be disposed within the groove 366 and pin 364 may be affixed to an actuation sleeve 368 of an expandable reamer of the present invention." 21:49-66 – "Therefore, considering the **beginning at position A1** as shown in FIG. 3, the pin 364 may be traversed within the groove 366 **to position B1** by way of a relatively high flow rate of drilling fluid, for instance, 800 gallons per minute. Sufficient reduction of the flow rate of drilling fluid may cause the restoring force of a biasing element to cause the pin 364 and actuation sleeve 368 **to move upward,**	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					into position C1. Similarly, the pin 364 and actuation sleeve 368 may be caused **to move to position D1** via a relatively high flow rate of drilling fluid. Further, sufficient reduction of the flow rate of drilling fluid may cause the pin 364 and actuation sleeve 368 to move to position A2. Of course, as mentioned above, the pattern may continue around the entire circumference of the sleeve 362, and may be continuous so that the sequence may be repeated any number of times. For instance, the groove 366 as shown in FIG. 3 may include peaks and valleys B2, C2, D2, A3, B3, C3, and D3 (not shown) on the portion of the circumference of the sleeve 362 not visible in FIG. 3." 13:3-53 – "Actuation sleeve 40 may be positioned longitudinally in a first position, where apertures or ports 42 are above actuation	

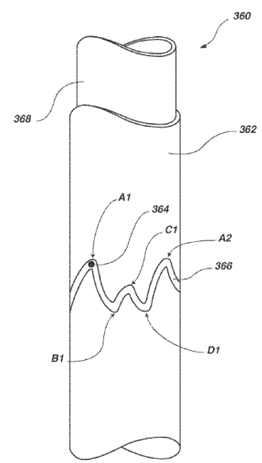
Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					seal 43. Drilling fluid (not shown) may pass through actuation sleeve 40, thus passing by movable blades 12 and 14. Actuation seal 43 and lower sleeve seal 45 may prevent drilling fluid from interacting with movable blades 12 and 14. Further, sleeve-biasing element 44 may provide a bias force to actuation sleeve 40 to maintain its longitudinal position. However, as drilling fluid passes through actuation sleeve 40, a reduced cross-sectional orifice 50 may produce a force upon the actuation sleeve 40. As known in the art, drag of the drilling fluid through the reduced cross-sectional orifice 50 may cause a downward longitudinal force to develop on the actuation sleeve 40. As the drilling fluid force on the actuation sleeve 40 exceeds the force generated by the sleeve-biasing element 44, the actuation	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					sleeve 40 may move longitudinally downward thereagainst. **Thus, the longitudinal position of the actuation sleeve 40 may be modified by way of changing the flow rate of the drilling fluid passing therethrough.** Alternatively, a collet or shear pins (not shown) may be used to resist the downward longitudinal force until the shear point of the shear pin or frictional force of the collet is exceeded. Thus, the downward longitudinal force generated by the drilling fluid moving through the reduced cross-sectional area orifice 50 may cause a frangible or frictional element to release the actuation sleeve 40 and may cause the actuation sleeve 40 to move longitudinally downward. Further, the longitudinal position of the actuation sleeve 40 may allow drilling	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					fluid to be diverted to the inner surfaces 21 and 23 of movable blades 12 and 14, respectively, via apertures or ports 42. In opposition to the force of the drilling fluid upon the inner surfaces 21 and 23 of movable blades 12 and 14, blade-biasing elements 24, 26, 28, and 30 may be configured to provide an inward radial or lateral force upon movable blades 12 and 14. However, drilling fluid acting upon the inner surfaces 21 and 23 may generate a force that exceeds the force applied to the movable blades 12 and 14 by way of the blade-biasing elements 24, 26, 28, and 30, and movable blades 12 and 14 may, therefore, move radially or laterally outwardly. Thus, expandable reamer 10 is shown in an expanded state in FIG. 1B, wherein movable blades 12 and 14 are disposed at their	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					outermost radial or lateral position. Thus, FIG. 1B shows an operational state of expandable reamer 10 wherein actuation sleeve 40 is positioned longitudinally so that apertures or ports 42 allow drilling fluid flowing through expandable reamer 10 to pressurize the annulus 17 formed between the outer surface of actuation sleeve 40 and inner radial surface of movable blades 12 and 14 to force movable blade 12 against blade-biasing elements 24 and 26, as well as forcing movable blade 14 against blade-biasing elements 28 and 30." **'418 Patent:** Claims 3, 7, 10, 13, 14, 18 Claim 3 – "The method of claim 1, further comprising	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					selectively and repeatably moving an actuation member between a **first position** and a **second position** relative to a tubular body of the expandable reamer." Claim 7 – "increasing a flow rate of drilling fluid through the expandable reamer to cause an actuation member of the expandable reamer to move from a first position to a **second position** while the expandable reamer is positioned downhole" Claim 13 - "The expandable reamer of claim 11, wherein each of the **first position**, the **second position** and the **third position** further comprise **different longitudinal positions within the tubular body**." Claim 14 – "The expandable reamer of claim 11, wherein each of the **first position**, the **second position** and the **third position** further comprise **different**	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					circumferential positions within the tubular body." FIG. 3  FIG. 3	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					4:57-5:4 – "Moreover, a flow restriction element may be disposed within the drill string to actuate 55 the expansion of the expandable reamer. For instance, a ball may be disposed within the drilling fluid, traveling therein, ultimately seating within an actuation sleeve disposed at a first position. Pressure from the drilling fluid may subsequently build to force the ball and actuation sleeve, optionally 60 held in place by way of a shear pin or other frangible member, into a second position, thereby actuating the expansion of the expandable reamer. Such a configuration may require that once the movable blades are expanded by the ball, in order to contract the movable blades, the flow is diverted around the 65 seated ball to allow a maximum fluid flow rate through the tool. Thus, the expandable reamer may be configured as a "one shot"	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					tool, which may be reset after actuation." 5:7-11 – "More specifically, a pin guide may comprise a cylinder with a groove having alternating upwardly sloping and downwardly sloping arcuate paths formed at least partially along the circumference of the cylinder and a pin affixed to an actuation sleeve, the pin disposed within the groove." 21:47-51 – "Further, groove 366 may be configured to extend about the entire circumference of the sleeve 362 in a repeating, continuous manner, so that the pin 364 may be caused to repeatedly traverse within the groove 366 and about the circumference of the sleeve 362." 21:61-22:7 – "[B]eginning at ***position A1*** as shown in FIG. 3, the pin 364 may be traverse within the groove 366 to ***position B1*** by way of	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					a relatively high flow rate of drilling fluid. . . . Sufficient reduction of the flow rate of drilling fluid may cause . . . the pin 364 and actuation sleeve 368 to move upward into ***position C1***. . . . Of course, as mentioned above, the pattern may continue around the entire circumference of the sleeve 362, and may be continuous so that the sequence may be repeated any number of times." 21:39-43 – "FIG. 3 shows a pin guide assembly 360 wherein a groove 366 is formed within sleeve 362. Pin 364 may be disposed within the groove 366 and pin 364 may be affixed to an actuation sleeve 368 of an expandable reamer of the present invention." 21:61-22:11 – "Therefore, considering the **beginning at position A1** as shown in FIG. 3, the pin 364 may be	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					traversed within the groove 366 **to position B1** by way of a relatively high flow rate of drilling fluid, for instance, 800 gallons per minute. Sufficient reduction of the flow rate of drilling fluid may cause the restoring force of a biasing element to cause the pin 364 and actuation sleeve 368 **to move upward, into position C1**. Similarly, the pin 364 and actuation sleeve 368 may be caused **to move to position D1** via a relatively high flow rate of drilling fluid. Further, sufficient reduction of the flow rate of drilling fluid may cause the pin 364 and actuation sleeve 368 to move to position A2. Of course, as mentioned above, the pattern may continue around the entire circumference of the sleeve 362, and may be continuous so that the sequence may be repeated any number of times. For instance, the groove 366 as shown in FIG. 3 may include	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					peaks and valleys B2, C2, D2, A3, B3, C3, and D3 (not shown) on the portion of the circumference of the sleeve 362 not visible in FIG. 3." 13:14-64 – "Actuation sleeve 40 may be positioned longitudinally in a first position, where apertures or ports 42 are above actuation seal 43. Drilling fluid (not shown) may pass through actuation sleeve 40, thus passing by movable blades 12 and 14. Actuation seal 43 and lower sleeve seal 45 may prevent drilling fluid from interacting with movable blades 12 and 14. Further, sleeve-biasing element 44 may provide a bias force to actuation sleeve 40 to maintain its longitudinal position. However, as drilling fluid passes through actuation sleeve 40, a reduced cross-sectional orifice 50 may produce a force upon the actuation sleeve 40. As known in the	

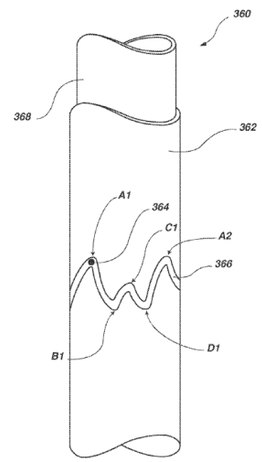
Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					art, drag of the drilling fluid through the reduced cross-sectional orifice 50 may cause a downward longitudinal force to develop on the actuation sleeve 40. As the drilling fluid force on the actuation sleeve 40 exceeds the force generated by the sleeve-biasing element 44, the actuation sleeve 40 may move longitudinally downward thereagainst. **Thus, the longitudinal position of the actuation sleeve 40 may be modified by way of changing the flow rate of the drilling fluid passing therethrough.** Alternatively, a collet or shear pins (not shown) may be used to resist the downward longitudinal force until the shear point of the shear pin or frictional force of the collet is exceeded. Thus, the downward longitudinal force generated by the drilling fluid moving through the reduced cross-	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					sectional area orifice 50 may cause a frangible or frictional element to release the actuation sleeve 40 and may cause the actuation sleeve 40 to move longitudinally downward. Further, the longitudinal position of the actuation sleeve 40 may allow drilling fluid to be diverted to the inner surfaces 21 and 23 of movable blades 12 and 14, respectively, via apertures or ports 42. In opposition to the force of the drilling fluid upon the inner surfaces 21 and 23 of movable blades 12 and 14, blade-biasing elements 24, 26, 28, and 30 may be configured to provide an inward radial or lateral force upon movable blades 12 and 14. However, drilling fluid acting upon the inner surfaces 21 and 23 may generate a force that exceeds the force applied to the movable blades 12 and 14 by way of the blade-biasing	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					elements 24, 26, 28, and 30, and movable blades 12 and 14 may, therefore, move radially or laterally outwardly. Thus, expandable reamer 10 is shown in an expanded state in FIG. 1B, wherein movable blades 12 and 14 are disposed at their outermost radial or lateral position. Thus, FIG. 1B shows an operational state of expandable reamer 10 wherein actuation sleeve 40 is positioned longitudinally so that apertures or ports 42 allow drilling fluid flowing through expandable reamer 10 to pressurize the annulus 17 formed between the outer surface of actuation sleeve 40 and inner radial surface of movable blades 12 and 14 to force movable blade 12 against blade-biasing elements 24 and 26, as well as forcing movable blade 14	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					against blade-biasing elements 28 and 30." **Extrinsic Evidence** MERRIAM WEBSTER'S COLLEGIATE DICTIONARY (10th ed. 1997) at 323, 908. • different – "partially or totally unlike in nature, form, or quality" • position – "the point or area occurred by a physical object"	
'635 Patent–claim 2 2. The expandable reamer of claim 1, further comprising a biasing element positioned and configured to bias the actuation member to **a third position** within the tubular body. Other claims '635 Patent–claims 2, 4, 5, 14 '418 Patent–claims 7, 11, 13, 14	***"third position"***	Plain and ordinary meaning	*See* "first position" above	"a third peak or valley"	**Intrinsic Evidence** **'635 Patent:** Claims 2, 4, 5, 14 Claim 2 – "The expandable reamer of claim 1, further comprising a biasing element positioned and configured to bias the actuation member to a **third**	Plain and ordinary meaning.

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					position within the tubular body." Claim 4 – "The expandable reamer of claim 1, wherein each of the first position, the second position and the third position **comprise different longitudinal positions** within the tubular body" Claim 5 – "The expandable reamer of claim 1**,** wherein each of the **first position**, the **second position** and the **third position** further **comprise different circumferential positions** within the tubular body Claim 14 – "The expandable reamer of claim 11, further comprising biasing the actuation member to a **third position prior to selectively moving the actuation member to one of the first position and the second position**."	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					FIG. 3  FIG. 3 4:53-67 – "Moreover, a flow restriction element may be disposed within the drill string to actuate 55 the expansion of the expandable reamer. For instance, a ball may be disposed within the drilling fluid, traveling therein, ultimately seating within an actuation sleeve disposed at a first position. Pressure from the drilling fluid may subsequently build	

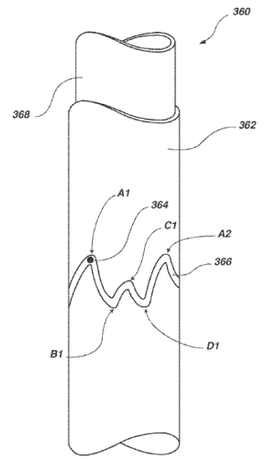
Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					to force the ball and actuation sleeve, optionally 60 held in place by way of a shear pin or other frangible member, into a second position, thereby actuating the expansion of the expandable reamer. Such a configuration may require that once the movable blades are expanded by the ball, in order to contract the movable blades, the flow is diverted around the 65 seated ball to allow a maximum fluid flow rate through the tool. Thus, the expandable reamer may be configured as a "one shot" tool, which may be reset after actuation." 5:3-7 – "More specifically, a pin guide may comprise a cylinder with a groove having alternating upwardly sloping and downwardly sloping arcuate paths formed at least partially along the circumference of the cylinder and a pin affixed to	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					an actuation sleeve, the pin disposed within the groove." 21:36-40 – "Further, groove 366 may be configured to extend about the entire circumference of the sleeve 362 in a repeating, continuous manner, so that the pin 364 may be caused to repeatedly traverse within the groove 366 and about the circumference of the sleeve 362." 21:49-66 – "[B]eginning at **position A1** as shown in FIG. 3, the pin 364 may be traverse within the groove 366 to **position B1** by way of a relatively high flow rate of drilling fluid. . . . Sufficient reduction of the flow rate of drilling fluid may cause . . . the pin 364 and actuation sleeve 368 to move upward into **position C1**. . . . Of course, as mentioned above, the pattern may continue around the entire circumference of the sleeve	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					362, and may be continuous so that the sequence may be repeated any number of times." 21:28-21:32 – "FIG. 3 shows a pin guide assembly 360 wherein a groove 366 is formed within sleeve 362. Pin 364 may be disposed within the groove 366 and pin 364 may be affixed to an actuation sleeve 368 of an expandable reamer of the present invention." 21:49-66 – "Therefore, considering the **beginning at position A1** as shown in FIG. 3, the pin 364 may be traversed within the groove 366 **to position B1** by way of a relatively high flow rate of drilling fluid, for instance, 800 gallons per minute. Sufficient reduction of the flow rate of drilling fluid may cause the restoring force of a biasing element to cause the pin 364 and actuation sleeve 368 **to move upward,**	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					into position C1. Similarly, the pin 364 and actuation sleeve 368 may be caused **to move to position D1** via a relatively high flow rate of drilling fluid. Further, sufficient reduction of the flow rate of drilling fluid may cause the pin 364 and actuation sleeve 368 to move to position A2. Of course, as mentioned above, the pattern may continue around the entire circumference of the sleeve 362, and may be continuous so that the sequence may be repeated any number of times. For instance, the groove 366 as shown in FIG. 3 may include peaks and valleys B2, C2, D2, A3, B3, C3, and D3 (not shown) on the portion of the circumference of the sleeve 362 not visible in FIG. 3." **'418 Patent:** Claims 7, 11, 13, 14	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					Claim 7 – "increasing a flow rate of drilling fluid through the expandable reamer to cause an actuation member of the expandable reamer to move from a first position to a **second position** while the expandable reamer is positioned downhole" Claim 11 – "The expandable reamer of claim 10, further comprising a biasing element positioned and configured to bias the actuation member to a **third position** within the tubular body." Claim 13 - "The expandable reamer of claim 11, wherein each of the **first position**, the **second position** and the **third position** further comprise **different longitudinal positions within the tubular body**." Claim 14 – "The expandable reamer of claim 11, wherein	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					each of the **first position**, the **second position** and the **third position** further comprise **different circumferential positions within the tubular body**." FIG. 3  FIG. 3 4:57-5:4 – "Moreover, a flow restriction element may be disposed within the drill string to actuate 55 the expansion of the expandable reamer. For instance, a ball may be disposed within the	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					drilling fluid, traveling therein, ultimately seating within an actuation sleeve disposed at a first position. Pressure from the drilling fluid may subsequently build to force the ball and actuation sleeve, optionally 60 held in place by way of a shear pin or other frangible member, into a second position, thereby actuating the expansion of the expandable reamer. Such a configuration may require that once the movable blades are expanded by the ball, in order to contract the movable blades, the flow is diverted around the 65 seated ball to allow a maximum fluid flow rate through the tool. Thus, the expandable reamer may be configured as a "one shot" tool, which may be reset after actuation." 5:7-11 – "More specifically, a pin guide may comprise a cylinder with a groove having alternating upwardly	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					sloping and downwardly sloping arcuate paths formed at least partially along the circumference of the cylinder and a pin affixed to an actuation sleeve, the pin disposed within the groove." 21:47-51 – "Further, groove 366 may be configured to extend about the entire circumference of the sleeve 362 in a repeating, continuous manner, so that the pin 364 may be caused to repeatedly traverse within the groove 366 and about the circumference of the sleeve 362." 21:61-22:7 – "[B]eginning at ***position A1*** as shown in FIG. 3, the pin 364 may be traverse within the groove 366 to ***position B1*** by way of a relatively high flow rate of drilling fluid. . . . Sufficient reduction of the flow rate of drilling fluid may cause . . . the pin 364 and actuation sleeve 368 to move upward	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					into ***position C1***. . . . Of course, as mentioned above, the pattern may continue around the entire circumference of the sleeve 362, and may be continuous so that the sequence may be repeated any number of times." 21:39-43 – "FIG. 3 shows a pin guide assembly 360 wherein a groove 366 is formed within sleeve 362. Pin 364 may be disposed within the groove 366 and pin 364 may be affixed to an actuation sleeve 368 of an expandable reamer of the present invention." 21:61-22:11 – "Therefore, considering the **beginning at position A1** as shown in FIG. 3, the pin 364 may be traversed within the groove 366 **to position B1** by way of a relatively high flow rate of drilling fluid, for instance, 800 gallons per minute. Sufficient reduction of the	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					flow rate of drilling fluid may cause the restoring force of a biasing element to cause the pin 364 and actuation sleeve 368 **to move upward, into position C1**. Similarly, the pin 364 and actuation sleeve 368 may be caused **to move to position D1** via a relatively high flow rate of drilling fluid. Further, sufficient reduction of the flow rate of drilling fluid may cause the pin 364 and actuation sleeve 368 to move to position A2. Of course, as mentioned above, the pattern may continue around the entire circumference of the sleeve 362, and may be continuous so that the sequence may be repeated any number of times. For instance, the groove 366 as shown in FIG. 3 may include peaks and valleys B2, C2, D2, A3, B3, C3, and D3 (not shown) on the portion of the circumference of the sleeve 362 not visible in FIG. 3."	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					Extrinsic Evidence MERRIAM WEBSTER'S COLLEGIATE DICTIONARY (10th ed. 1997) at 323, 908. • different – "partly or totally unlike in nature, form, or quality" • position – "the point or area occupied by a physical object"	
'635 Patent–claim 1 1. An expandable reamer for drilling a subterranean formation, comprising: a tubular body; at least one blade carried by the tubular body; and an actuation member selectively and repeatably positionable between a first position within the tubular body and a second position within the tubular body, and configured to maintain the expandable reamer in a first operating condition during a	***"substantially identical" /"substantially the same"***	Plain and ordinary meaning	"Therefore, considering the beginning at position Al as shown in FIG. 3, the pin 364 may be traversed within the groove 366 to position Bl by way of ***a relatively high flow rate*** of drilling fluid, for instance, 800 gallons per minute. Sufficient reduction of the flow rate of drilling fluid may cause the restoring force of a biasing element to cause the pin 364 and actuation sleeve 368 to move upward, into position Cl. ***Similarly***, the pin 364 and actuation sleeve 368 may be caused to move to position	Invalid as indefinite and/or lacking adequate written description or enablement	**Intrinsic Evidence** **'635 patent:** Claim 1 – "an actuation member selectively and repeatably positionable between a first position within the tubular body and a second position within the tubular body, and configured to maintain the expandable reamer **in a first operating condition during a flow of drilling fluid** through the tubular body when the actuation member	Plain and ordinary meaning.

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
flow of drilling fluid through the tubular body when the actuation member is positioned in the first position and to maintain the expandable reamer in a second operating condition during a ***substantially identical*** flow of drilling fluid through the tubular body when the actuation member is positioned in the second position. '635 Patent–claim 11 11. A method of operating an expandable reamer, the method comprising: selectively and repeatably moving an actuation member between a first position and a second position relative to a tubular body of the expandable reamer while the expandable reamer is positioned downhole; operating the expandable reamer in a first operating condition while flowing drilling fluid through the			Dl via ***a relatively high flow*** rate of drilling fluid." '635 patent, col. 21:50–58; '418 patent, col. 21:61–22:3. Examples of "substantially" used in its ordinary sense to mean approximately, generally, or essentially "substantially constant diameter" '418 patent, col. 1:66–67; '635 patent, col. 1:62–63 "substantially the opposite direction" '418 patent, col. 4:9–10; '635 patent, col. 4:4–5 "substantially straight longitudinally extending sections" '418 patent, col. 5:35–36; '635 patent, col. 5:30–31 "substantially the same operating conditions"		is positioned in the first position and to maintain the expandable reamer **in a second operating condition during a substantially identical flow of drilling fluid** through the tubular body when the actuation member is positioned in the second position" Claims 7, 8, 11 **'418 patent:** Claims 18-20 There is no intrinsic guidance within the specification for "substantially identical" or "substantially the same" flow of drilling fluid / drilling fluid flow rate.	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
tubular body at a first flow rate by maintaining the actuation member in the first position; and operating the expandable reamer in a second operating condition while flowing drilling fluid through the tubular body at a flow rate ***substantially the same*** as the first flow rate by maintaining the actuation member in the second position. <u>Other claims:</u> '635 Patent–claims 7, 8 '418 Patent–claims 18-20			'418 patent, col. 9:32–33; '635 patent, col. 9:26–28 "substantially identical outer radial or lateral extents" '418 patent, col. 10:40; '635 patent, col. 10:32 "substantially coincide with or not exceed" '418 patent, col. 13:8–9; '635 patent, col. 12:64–65 "substantially perpendicular to" '418 patent, col. 14:23–24; '635 patent, col. 14:12–13 "substantially the length of" '418 patent, col. 15:28–29; '635 patent, col. 15:16–18 "substantially the same exposure" '418 patent, col. 16:48–49, 57–58; '635 patent, col. 16:36–38, 46–47			

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
			"substantially longitudinally past" '418 patent, col. 17:13–14; '635 patent, col. 17: 1–2 "substantially the longitudinal length" '418 patent, col. 18:11–12; '635 patent, col. 17:64–66 "substantially sealed from" '418 patent, col. 18:50–51; '635 patent, col. 18:39–40 "substantially conforming to" '418 patent, col. 23:66–67; 24:3–4; '635 patent, col. 23:37–38, 54–55 "substantially the outer diameter" '418 patent, col. 24:5–6; '635 patent, col. 23:60–61 "substantially the same operating conditions" '418 patent, col. 24:11–12; '635 patent, col. 23:66–67			

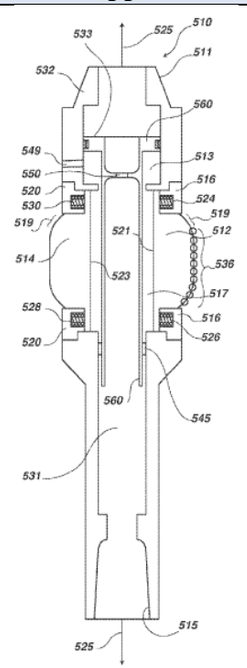
Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
			"substantially equalize drilling fluid pressure" '418 patent, col. 25:34–35; '635 patent, col. 25:22–23 "substantially equalizing the pressure of" '418 patent, col. 25:43–44; '635 patent, col. 25:31–32 "substantially inhibit drilling fluid from contacting" '418 patent, col. 26:43–44; '635 patent, col. 26:32–33 "substantially return to its initial operational state" '418 patent, col. 27:13–15; '635 patent, col. 27:3–4 "substantially correspond to the outer diameter" '418 patent, col. 27:61–62; '635 patent, col. 27:50–51 "substantially seal ports 660"			

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
			'418 patent, col. 31:45–46; '635 patent, col. 31:33–34 "substantially blocked" '418 patent, col. 31:48–49; '635 patent, col. 31:36–37 "positioned substantially at their outermost radial or lateral position" '418 patent, col. 31:64–65; '635 patent, col. 31:52–53			
'418 Patent–claim 1 1. A method of operating an expandable reamer, the method comprising: ***increasing a flow rate of drilling fluid through the expandable reamer to cause at least one blade of the expandable reamer to move from a retracted position to an expanded position*** while the expandable reamer is positioned downhole; decreasing the flow rate of drilling fluid through the expandable reamer to cause the at least one blade of the	***"increasing a flow rate of drilling fluid through the expandable reamer to cause at least one blade of the expandable reamer to move from a retracted position to an expanded position"***	Plain and ordinary meaning	"instead of a separation element that transmits or communicates pressure or forces to another fluid in communication with movable blades, ***movable blades of the present invention may be separated from drilling fluid by way of a fixed barrier***." '418 patent, col. 27:20–24 "the actuation sleeve may be fixed in a position ***separating drilling fluid from communication with any movable blades*** and a port may be provided to pressurize the movable	"increasing the flow of drilling fluid against the moveable blades such that the blade moves from a retracted position to an expanded position"	**Intrinsic Evidence** **'418 patent:** Claim 1 4:4-17 – "Sufficient displacement of the actuation sleeve **may allow drilling fluid to communicate through apertures in the displaced actuation sleeve with movable blade sections, the pressure of the drilling fluid forcing the movable blades to expand** radially or laterally outwardly. Further,	Increasing the flow of drilling fluid against the moveable blades such that the blade moves from a retracted position to an expanded position.

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
expandable reamer to move from the expanded position to the retracted position while the expandable reamer is positioned downhole; and increasing the flow rate of the drilling fluid through the expandable reamer and maintaining the at least one blade of the expandable reamer in the retracted position while the expandable reamer is positioned downhole.			blades." '418 patent, col. 27:36–39 *Compare* "increasing a flow rate of drilling fluid through the expandable reamer ***to cause at least one blade of the expandable reamer to move from a retracted position to an expanded position*** while the expandable reamer is positioned downhole" '418 patent, claim 1 *with* "an actuation sleeve positioned along an inner diameter of the tubular body and configured to ***selectively allow communication of drilling fluid*** passing through the tubular body ***with the at least one laterally movable blade***" U.S. Patent # 7,036,611, claim 1; "actuation structure positioned within the tubular body and configured to ***selectively allow***		the actuation sleeve may be biased in substantially the opposite direction of the force generated by drilling fluid passing through the reduced cross-sectional area of the actuation sleeve by way of a sleeve-biasing element. **Such a sleeve-biasing element may cause the actuation sleeve to be repositioned, in the absence of, or against, the force generated by drilling fluid passing through the reduced cross-sectional orifice, thus preventing drilling fluid from communicating with the movable blades of the expandable reamer**." 27:1-11 – "As the longitudinal position of the separation element 560 changes, fluid within the upper chamber 513 may be transferred into the annulus 517 and pressure may develop therein. Thus, **pressure developed within**	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
			communication of drilling fluid passing through the tubular body ***with the at least one laterally movable blade***" U.S. Patent # 7,308,937, claim 1; *and* "an actuation member selectively and repeatably positionable between a first position within the tubular body and a second position within the tubular body, and ***configured to allow the pressure of drilling fluid*** passing through the tubular body ***to move the at least one blade to the extended position***" '635 patent, claim 19 *See also* "***a drilling fluid path for communicating drilling fluid through the expandable reamer without interaction with the at least one laterally movable blade***; and		**annulus 517 <u>acts on the inner surfaces 521 and 523</u> of movable blades 512 and 514**, respectively, against forces generated by way of blade-biasing elements 524, 526, 528, and 530. **Sufficient pressure <u>acting upon the inner surfaces 521 and 523</u> may cause the movable blades 512 and 514 to move radially or laterally outwardly** to an outermost radial or lateral position, matingly engaging retention elements 516 and 520, respectively, as shown in FIG. 9B." 27:27-39 – "Furthermore, **pressurized fluid or gas** may be supplied within annulus 517 by way of a downhole pump or turbine via port 549. Accordingly, the movable blades 512 and 514 may be deployed thereby. Such a configuration **may allow for expandable reamer 510 to be expanded irrespective of**	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
			a chamber in communication with the at least one laterally movable blade, substantially sealed from the drilling fluid path and configured for developing pressure therein." '611 patent, claim 83 "***preventing*** drilling fluid from communicating with the at least one laterally movable blade" '611 patent, claims 113 and 115 "an actuation sleeve positioned along an inner diameter of the tubular body and configured to selectively ~~prevent or~~ allow drilling fluid communication with the at least one laterally movable blade <u>to effect outward lateral movement thereof</u> according to a flow rate of drilling fluid passing therethrough." Dkt. 67, Exhibit 8.4 at 40, Prosecution History of US		**drilling fluid flow rates or pressures**. Of course, many configurations may exist where the movable blades may **communicate with a nondrilling fluid pressurized by a downhole pump or turbine**. For instance, in any embodiments including an actuation sleeve, the actuation sleeve may be fixed in a position separating drilling fluid from communication with any movable blades and a port may be provided to pressurize the movable blades." FIG. 9B	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
			Patent App. 10/624,952, pg. 2 (2/23/05 Amendment) "Dewey never communicates drilling fluid with any blade." Dkt. 67, Exhibit 8.5 at 21, Prosecution History of US Patent App. 10/624,952, pg. 24 (2/23/05 Amendment) "actuation structure positioned within the tubular body and configured to selectively allow communication of drilling fluid passing through the tubular body with the at least one laterally movable blade to effect outward lateral movement thereof responsive to a force or pressure of drilling fluid passing through the tubular body." Dkt. 67, Exhibit 7.5 at 29, Prosecution History of US Patent App. 11/413,635, pg. 2 (07/02/07 Amendment)		 FIG. 9B '611 patent prosecution history: • Patentee's Amendment and Remarks to Examiner's Rejection (Feb. 28, 2005), at 2 (Amended claim 1) – "an actuation sleeve	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
			"First, in the embodiment of FIGS. 4 and 5 of Dewey, drilling fluid passing through the tool is always in communication with a blade actuation mechanism, but is never in communication with a blade to effect movement." Dkt. 67, Exhibit 7.5 at 42, Prosecution History of US Patent App. 11/413,635, pg. 15 (07/02/07 Amendment)		positioned along an inner diameter of the tubular body and configured to selectively ~~prevent or~~ allow *drilling fluid communication with the at least one laterally movable blade* to effect outward lateral movement thereof according to a flow rate of drilling fluid passing therethrough." • Patentee's Amendment and Remarks to Examiner's Rejection (Feb. 28, 2005), at 24 – "Applicants have amended claim 1, in pertinent part, to further define over Dewey et al. ("Dewey"). Applicants have amended claim 1 to recite" . . . at least one blade-biasing element oriented substantially transversely to the longitudinal axis and in contact with the at least one laterally movable blade for holding the at least one laterally	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					movable blade at an innermost lateral position with a force, the innermost lateral position corresponding to no more than an initial diameter of the expandable reamer . . ." Applicants note that biasing spring 540 of Dewey is parallel to the longitudinal axis in both embodiments, and that biasing spring is not in contact with any of blades 520 in either embodiment. **Applicants further note that claim 1 as amended requires that the actuation sleeve is configured to selectively prevent or allow drilling fluid communication with the at least one laterally movable blade to effect outward lateral movement thereof. Dewey never communicates drilling fluid with any blade, but only with drive ring 570, which acts upon the**	

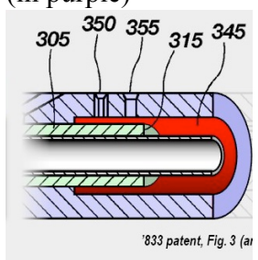
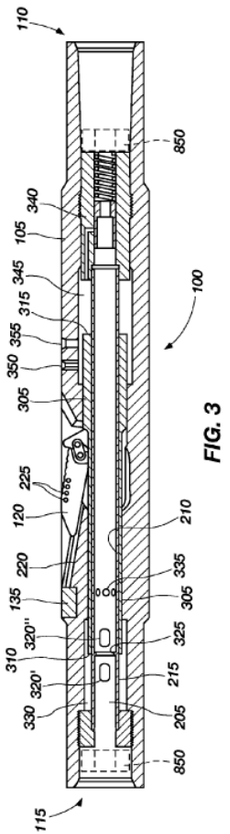
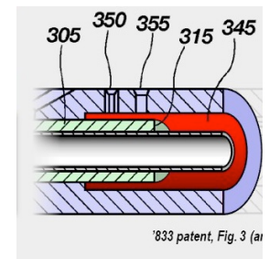
Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					blade. Accordingly, the invention as presently claimed in amended claim 1 is not described, either expressly or inherently, by Dewey. Withdrawal of the rejection is respectfully requested. • U.S. Patent No. 6,732,817 (cited as basis for rejection) <u>'937 patent prosecution history</u>: • Patentee's Amendment and Remarks to Examiner's Rejection (July 2, 2007), at 2 – "actuation structure positioned within the tubular body and configured to selectively allow **communication of drilling fluid** passing through the tubular body **with the at least one laterally movable blade** to effect outward lateral movement thereof responsive to a force or	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					pressure of drilling fluid passing through the tubular body." • Patentee's Amendment and Remarks to Examiner's Rejection (July 2, 2007), at 14-15 – "Further, Dewey fails to describe "actuation structure positioned within the tubular body and configured to selectively allow communication of drilling fluid passing through the tubular body with the at least one laterally movable blade to effect outward lateral movement thereof responsive to a force or pressure of drilling fluid passing through the tubular body." First, in the embodiment of FIGS. 4 and 5 of Dewey, **drilling fluid passing through the tool is always in communication with a blade actuation mechanism, but is never**	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					in communication with a blade to effect movement. Rather, when the blades (arms) 520 are to be extended, **the drilling fluid acts upon piston 530, drive ring block 572 and drive ring 570 to move blades (aims) 520**. In the embodiment of FIGS. 11 and 12 of Dewey, drilling fluid is placed in communication with piston 530, drive ring block 572 and drive ring 570 through engagement of an upper surface 975 of stinger 910 with an "actuator" which may be a "f1ow switch" but, again, is never placed in communication with any blade (arm) 520 to effect movement." • U.S. Patent No. 6,732,817 (cited as basis for rejection)	

					’635 patent prosecution history: • Non-Final Rejection, at 3 (Mar. 17, 2011), at – “Claim 19 is **rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 9 of U.S. Patent No. 7,036,611. Although the conflicting claims are not identical, they are not patentably distinct from each other** because the instant claim is fully encompassed by claims 1 and 9 of 7,036,611.” • ’635 patent, claim 19 (cited as basis for rejection) – “an actuation member selectively and repeatably positionable between a first position within the tubular body and a second position within the tubular body, and configured to **allow the pressure of drilling fluid passing through**	

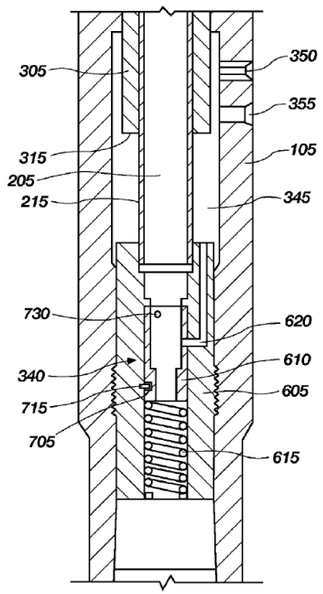
Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					the tubular body <u>to move</u> the at least one blade to the extended position when positioned in the first position and to **prevent the pressure of drilling fluid passing through the tubular body <u>from moving</u> the at least one blade** to the extended position when positioned in the second position. Terminal Disclaimer filed	

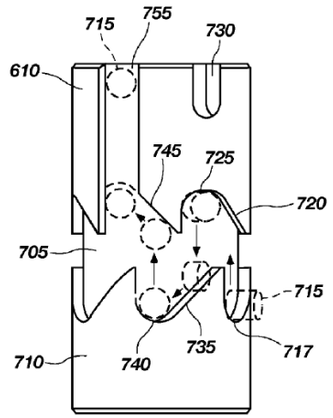
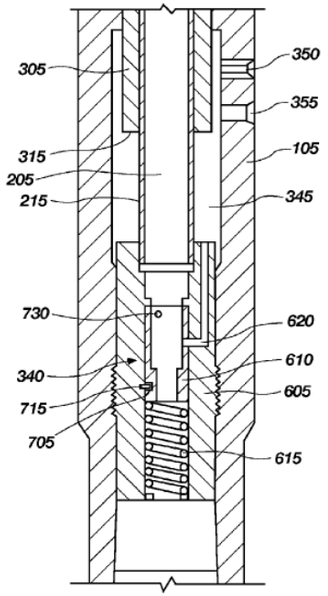
Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
'833 Patent–claim 14 14. An expandable apparatus, comprising: a tubular body comprising a fluid passageway extending through an inner bore; a push sleeve disposed within the inner bore of the tubular body and coupled to one or more expandable features, the push sleeve comprising a ***lower surface disposed in a lower annular chamber between the push sleeve and the tubular body*** and configured to move axially responsive to a flow of drilling fluid through the fluid passageway to extend and retract the one or more expandable features; and a valve independent of the push sleeve within the tubular body configured to selectively control the flow of drilling fluid from the fluid passageway into the lower annular chamber.	***"lower surface disposed in a lower annular chamber between the push sleeve and the tubular body"***	Plain and ordinary meaning consistent with, for example, annotated Figure 3 illustrating a lower annular chamber **345** (in red), push sleeve **305** (in green), and the tubular body **105** (in purple) 	 FIG. 3 '833 patent, Figure 3 "Referring to FIG. **3,** the blades **120, 125, 130** (as illustrated by blade **120)** are	"a lower surface located in an annular chamber between the outer diameter of the push sleeve and the inner diameter of the tubular body" - or - Indefinite	**Intrinsic Evidence** **'833 patent:** Claim 14 – "a push sleeve disposed within the inner bore of the tubular body and coupled to one or more expandable features, the push sleeve comprising **a lower surface disposed in a lower annular chamber between the push sleeve and the tubular body** and configured to move axially responsive to a flow of drilling fluid through the fluid passageway to extend and retract the one or more expandable features" 3:28-29 – "The push sleeve may comprise a lower surface in communication with a lower annular chamber." 3:54-58 – "A force may be exerted by the drilling fluid on the lower surface 55 of the push sleeve, moving the	Plain and ordinary meaning consistent with, for example, annotated Figure 3 illustrating a lower annular chamber **345** (in red), push sleeve **305** (in green), and the tubular body **105** (in purple)*  *The figure should be amended to identify the body **105** directly on the figure.

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
			hingedly coupled to a push sleeve **305.** The push sleeve **305** is disposed encircling the stationary sleeve **215** and configured to slide axially within the tubular body **105** in response to pressures applied to one end or the other, or both." '833 patent, col. 7:18–23. "A valve **340** is coupled to the lower end of the stationary sleeve **215** to selectively control the flow of fluid from the fluid passageway **205** to a lower annular chamber **345** between the inner sidewall of the tubular body **105** and the outer surfaces of the stationary sleeve **215,** and in communication with the lower surface **315** of the push sleeve **305."** '833 patent, col. 7:50–56. "When the valve 340 is selectively opened, as will be described in greater detail		push sleeve axially upward and expanding the one or more expandable features coupled to the push sleeve." 7:50-56 – "A valve 340 is coupled to the lower end of the stationary sleeve 215 to selectively control the flow of fluid from the fluid passageway 205 to a lower annular chamber 345 between the inner sidewall of the tubular body 105 and the outer surfaces of the stationary sleeve 215, and in communication with the lower surface 315 of the push sleeve 305. 8:4-9 – "When the valve 340 is selectively opened, as will be described in greater detail below, the fluid also flows from the fluid passageway 205 into the lower annular chamber 345, causing the fluid to pressurize the lower annular chamber 330, exerting a force on the lower	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
			below, the fluid also flows from the fluid passageway 205 into the lower annular chamber 345, causing the fluid to pressurize the lower annular chamber 330, exerting a force on the lower surface 315 of the push sleeve 305." '833 patent, col. 8:4–9.		surface 315 of the push sleeve 305." **Extrinsic Evidence** MCGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS (6th Ed. 2003) at 106. • annulus – "the ringlike figure that lies between two concentric circles" THE AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE (3rd Ed. 1992) at 75. • annular – "shaped like or forming a ring" • annulus – "the figure bounded by and containing the area between two concentric circles" **Baker's Admissions**	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					Baker's Opening Brief at 27 – "**it is not clear how** the lower surface of the push sleeve, which is part of the push sleeve, would be disposed in a chamber bounded by the push sleeve as required by [Smith's] construction." Baker's Reply Brief at 17 – "If Defendant's construction were adopted, the configuration shown in Figure 3 **would be impossible** because it would place the lower surface of the push sleeve (315) outside of the chamber (345).	
'833 Patent–claim 15 15. The expandable apparatus of claim 14, wherein the valve comprises a stationary ***valve sleeve*** having a longitudinally movable trap disposed therein and configured to obstruct one or more fluid ports extending between the fluid passageway and the lower annular chamber	***"valve sleeve"***	Plain and ordinary meaning	"3. The expandable apparatus of claim 1, wherein the valve comprises: ***a valve sleeve*** disposed within the inner bore of the tubular body and including at least one aperture in communication with the lower annular chamber . . . ." '833 patent, claim 3; and	"a sleeve including valve ports through which a fluid may flow"	**Intrinsic Evidence** **'833 patent:** Claim 14 – "**a valve** independent of the push sleeve within the tubular body **configured to selectively control the flow of drilling fluid** from the	Plain and ordinary meaning.

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
while passing a fluid through a central portion thereof. <u>Other claims:</u> '833 Patent–claim 16			"5. The expandable apparatus of claim 4, ***wherein the valve sleeve comprises at least one valve port*** . . . ." '833 patent, claim 5  ***FIG. 6*** '833 patent, Figure 6		fluid passageway into the lower annular chamber" Claim 15 – "The expandable apparatus of claim **14,** wherein the valve comprises **a stationary valve sleeve** having a longitudinally **movable trap disposed therein** and configured to obstruct **one or more fluid ports** extending between the fluid passageway and the lower annular chamber while passing a fluid through a central portion thereof" Claim 16 – "The expandable apparatus of claim 15, wherein the trap is configured to trap a flow restricting element on a seat located in a bore thereof and **is releasable from the valve sleeve** responsive to axially downward fluid pressure when the flow restricting element is on the seat" FIG. 6	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
			 ***FIG. 7*** '833 patent, Figure 7 "The rotation of the valve cylinder **610** may cause one or more apertures **730** in the valve cylinder **610** to move out of alignment with one or more valve ports **620** in communication with the lower annular chamber **345,** inhibiting flow of the drilling fluid from inside the valve **340** to the lower annular chamber **345."** '833 patent, col. 10:57–62.		 ***FIG. 6*** 10:3-21 – "A valve cylinder 610 is disposed within the valve sleeve 605 and configured to selectively expose **one or more valve ports 620**, through which a fluid may flow between the fluid passageway 205 and the lower annular chamber 345. With **continued**	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
			"FIG. 6 illustrates an embodiment comprising a mechanically operated valve 340. The mechanically operated valve 340 comprises a valve configured to open or to close in response to one or more mechanical forces. For example, in at least one embodiment, the **valve** 340 may comprise a **valve sleeve** 605 disposed within the tubular body 105 and coupled to a lower end of the stationary sleeve 215. A valve cylinder 610 is disposed within the valve sleeve 605 and configured to selectively expose one or more **valve ports** 620, through which a fluid may flow between the fluid passageway 205 and the lower annular chamber 345." '833 patent, col. 9:62–10:7		**reference to FIG. 6,** FIG. 7 illustrates at least one embodiment of a valve cylinder 610 configured to be coupled with the valve sleeve 605 with a pin and pin track configuration." 11:14-21 – "As the upper angled sidewall 745 of the pin track 705 moves with respect to pin 715, the valve cylinder 610 is forced to rotate still further within the valve sleeve 605. This rotation may cause the one or more apertures 730 to rotationally align with the **one or more valve ports 620 carried by the valve sleeve 605**, allowing drilling fluid to flow into the lower annular chamber 345 and sliding the push sleeve 305 as described above." 13:44-54 – "FIG. 9 illustrates another embodiment of an expandable apparatus 100. In the embodiment disclosed,	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					the **one or more valve ports 620 in the valve sleeve 605 are left unobstructed**, allowing fluid to flow into the lower annular chamber 345. The fluid flowing into the lower annular chamber 345 may exert a force on the lower surface 315 of the push sleeve 305, causing the push sleeve 305 to slide upward and extending the blades 120, 125, 130 (as illustrated by blade 120), as discussed previously. A screen catcher 955 is coupled to the valve sleeve 605 for catching discarded traps 905 (FIG. 10) and balls 950 (FIG. 12) as discussed in further detail below." 14:3-6 – "As shown in FIG. 11, complementary positioning features may be provided in the trap 905 and the valve sleeve 605 to facilitate proper relative positioning there between when the trap 905 travels	

Claim(s)	Term	Baker's Proposed Construction	Baker's Evidentiary Support	Smith's Proposed Construction	Smith's Evidentiary Support	Special Master's Construction
					through the valve sleeve 605." 15:2-10 – "With the protrusions 910 sheared, deformed, or biased inwardly, the metal trap 905 and the ball 950 will be expelled from the valve sleeve 605 into the screen catcher 955 as shown in FIG. 13. With the trap 905 and the ball 950 in the screen catcher 955, **the valve port 620 is again unobstructed, and fluid may flow through the valve port 620 into the lower annular chamber 345** and cause the blades 120, 125, 130 to extend as previously described regarding FIG. 9. Figures 3, 6, 8-13	